EVERYTHING YOU NEED TO KNOW ABOUT
APPLE MUSIC

Listen to everything on the iTunes Store for **FREE**
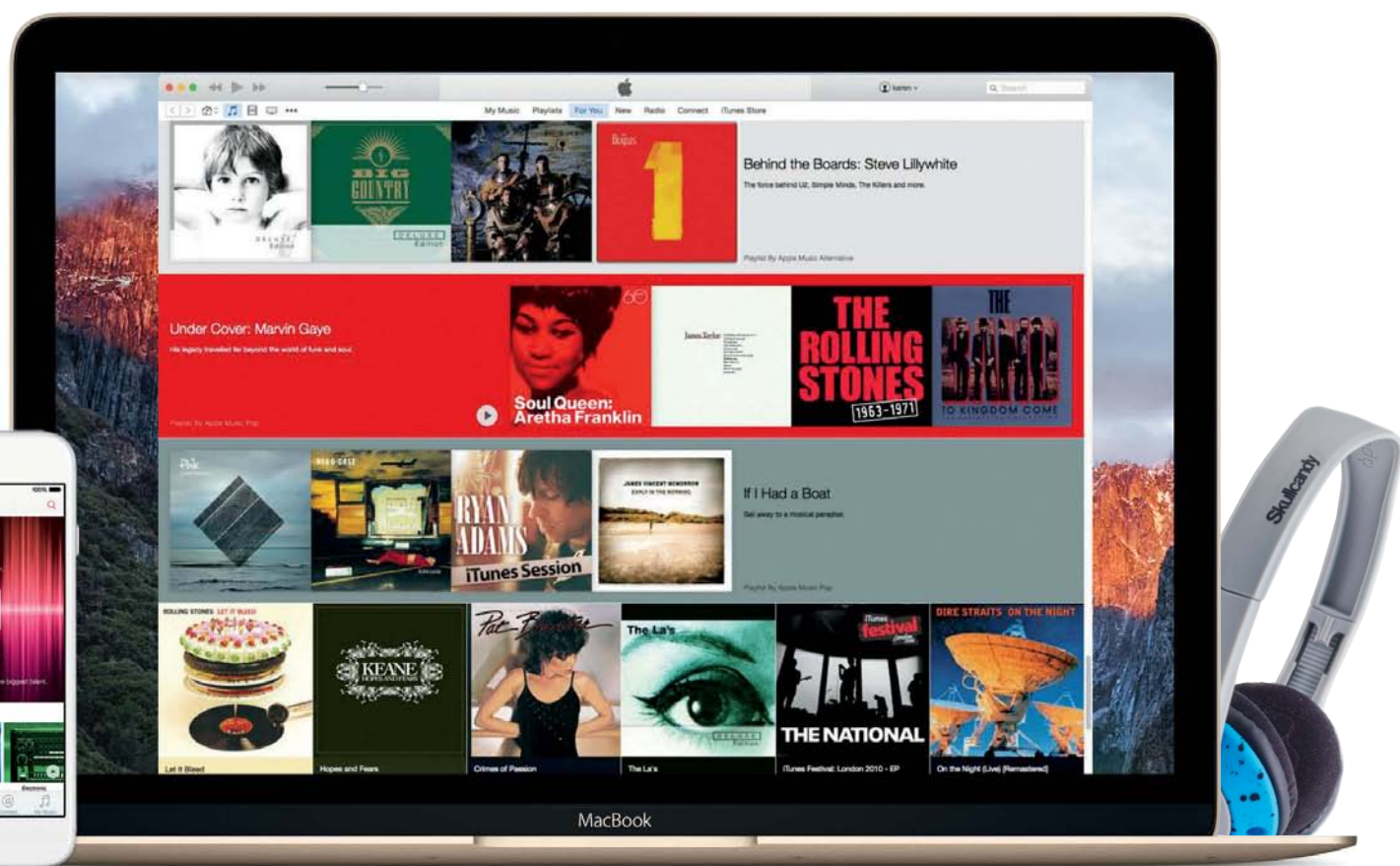
MacBook

OFFICE SOFTWARE SPECIAL

- 30 iWork tips
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FUNNY THINGS TO ASK SIRI

Zero divided by zero and other hilarious responses

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A busy month for Apple

With Apple Pay coming to the UK, Apple Music and beta versions of iOS 9 and El Capitan, it's been a busy month

Apple has been busy over the past month. Not only has it released public beta versions of iOS 9 and OS X 10.11 El Capitan, but it's launched Apple Music, Apple Pay has arrived in the UK, and even updated its iPod line-up with new colours. Nobody can complain that Apple has been quietly twiddling its thumbs.

People do complain, though. We've heard people grumbling that, having installed the beta versions of the as yet unreleased operating systems, their apps don't run the way they expect them to. What do you expect when you sign up as a beta tester? There wouldn't even be a beta program if the software wasn't going to be buggy – it's your job to identify these bugs. Don't install beta software on your main device if there is a chance that you will need to run critical apps on it.

Because the beta versions of the operating systems are likely to cause problems with your apps, Apple has stopped people who have installed the beta software on their device from leaving third-party app reviews on the Apple App stores. Something we think is a reasonable thing to do – it wouldn't be fair on developers if suddenly their app received a ton of criticism because it doesn't work in an unreleased operating system. And yet, people are now complaining that Apple has sidelined developers because they can't see if people testing the betas are having problems with their software. You can't have it both ways.

Up next on *Points of View* is Apple Music, which has also been attracting criticism. It has the unfortunate status of being a bit rubbish when you first start using it because it needs to spend a bit of time with you to gather the information it needs in order to give decent music recommendations. After using Apple

Music for a few days things improve, but how many people have stuck around for that long?

It's also not as intuitive to use as it could be, which has lead to a lot of confusion. For example, if you've been listening to some music and then later think you'd like to listen to it again, tracking down those tracks seems to be a little confusing for some people. We found out how to see what you've been listening to, by the way, just click on up next and scroll up through your history. It could certainly be more intuitive though.

Another problem is people's distrust of the 'three-month free trial'. The fact that during sign up Apple's wording suggests you will be paying £9.99 per month is stopping some from starting the trial. But it is possible to uncheck the box that will cause your subscription to be auto renewed after three months. We show you how on page 12.

Moving on to Apple Pay and the disappointment here is directed more at the UK banks than Apple. At launch only a handful of banks offered Apple Pay – Lloyds was absent, for example, even though it has confirmed it will join Apple Pay later this year. Barclays has been

putting all its resources behind its bPay system and initially had no plans to support Apple Pay, but now, in an about turn, we're hearing that the bank will be supporting it after all.

The other problem with Apple Pay is that, like any contactless payment system, it is limited by the standard, so you can't use it to pay for transactions over £20. That value is due to increase to £30 in September, but because Apple Pay is more secure than a debit or credit card – it relies on your fingerprint to work – it is hoped that eventually you will be able to spend any amount using Apple Pay on any contactless terminal. For now, only a few terminals will be able to handle larger transactions.

On to the new iPods. Apple hadn't updated these since September 2013 so the updates are welcome, although perhaps the digital player has had its day. It seemed logical that the update would help push Apple Music out to even more customers, though only the iPod touch is capable of connecting to the streaming service.

There was one more thing that attracted criticism: Apple's financial results. Even though the company beat its estimates for its revenue and profit, and sold more iPhones and Macs than it had in the same quarter last year, Wall Street still wasn't happy. Even worse, iPad sales declined again.

As for the Apple Watch, Apple didn't reveal exactly how many it sold, but it did reveal that it sold more Watches in the first nine weeks than it did of the original iPhone and iPad. Plus, research is suggesting that Apple already has 75 percent of the global smartwatch market. And yet people aren't satisfied. That's what happens when you are too good, everybody has such high expectations that even the best isn't good enough.

News

Apple Pay launches in the UK

Apple takes its mobile payment service worldwide, but there are a few missing pieces

BY CAITLIN MCGARRY

Apple Pay finally arrived in the UK on 14 July. A first tier of UK banks offered Apple Pay support immediately, including NatWest and Nationwide, but a second wave will have to wait until later in the year.

Notable holdouts include Barclays and, surprisingly, HSBC. The latter was expected to be one of Apple Pay's launch partners, but the bank announced it wouldn't support the service until the end of July.

Barclays has its own contactless payment service, bPay, but reversed its opposition to Apple Pay on launch day with a supportive tweet that read: "We are really excited about the launch of Apple Pay and will bring Barclays debit cards and Barclaycard credit cards to Apple Pay in the future."

Aside from HSBC, six more banks will sign on with Apple Pay in the near future. Bank of Scotland, First Direct, Halifax, M&S Bank, Lloyds Bank and TSB are listed on Apple Pay's UK site as 'coming soon'.

The UK launch came nine months after the US launch on 20 October 2014, as part of the iOS 8.1 update. Apple Pay saw one million activations in its first three days, according to Apple. Retailers seem to have adapted to the service quickly, with many popular shops supporting it from day one such as Starbucks and Waitrose, as well as TfL.

Apple announced its UK expansion plans at June's WWDC. The rollout is a huge leap forwards in terms of gaining mainstream acceptance, but the fact that Apple couldn't line up all of the major banks in time could hinder its appeal.

The service is available for owners of the Apple Watch, iPhone 6 and 6 Plus in-store, while the iPad Air 2 and iPad mini 3 users can use Apple Pay in apps.

There's a limit on how much you can spend. Right now buyers can make purchases of up to £20 using the service, with that limit rising to £30 in September.

Retailers seem to have adapted to the service quickly, with many popular shops supporting it from day one such as Starbucks and Waitrose

Apple overhauls iPod touch

New iPods are available now, with a refreshed iPod touch starting at £159

BY ASHLEIGH ALLSOPP

It seems that Apple has no immediate plans to kill its range of MP3 players. On 15 July, the company refreshed the iPod touch, nano and shuffle, though only the touch had a big overhaul.

All three iPods are available in gold, dark blue and pink, though the iPod touch is the only model to get new features under the hood. The touch comes with iOS 8.4 and access to Apple Music, which isn't surprising, but the new version also adds a 128GB model to the line-up for the first time for £329. A 16GB touch costs £159, a 32GB model will set you back £199, while the 64GB option is priced £249. All models are available in store,

Fitness, gaming, streaming, photography – the touch offers pretty much every great feature that the iPhone does without being a phone

with Apple throwing in free next-day delivery if you'd prefer to order online. The iPod touch's camera catches up with the iPhone 6 and iPad Air 2, going from 5Mp in the previous generation to 8Mp in the new version. Apple has added the iPhone's M8 motion coprocessor for better activity-tracking and a new 64-bit A8 chip for powerful mobile gaming. That chip's faster GPU and CPU power Apple's Metal technology, and combined with the new Retina display's 1136x640 resolution, console-style iOS games will look like they're designed to on the iPod touch.

Now that the company has embraced streaming, the iPod has to become much more than just a media storage device. Fitness, gaming, streaming, photography – the touch offers pretty much every great feature that the iPhone does without being a phone. It's great for kids and teens who want in on the £14.99 Apple Music family plan, but aren't allowed to own smartphones yet. Just look at the new touch marketing materials, which emphasise the improved FaceTime HD camera – perfect for taking selfies to share on social networks or with friends over iMessage. Expect the iPod touch to be a hit over Christmas.

Apple's third quarter financial results

$10.7 billion profit and a 'great start' for Apple Watch

BY CAITLIN MCGARRY AND JASON SNELL

Apple's third quarter was another bumper one for the tech giant. The Cupertino company made $10.7bn in profit on $49.6bn in revenue, compared to profit of $7.7bn on $37.4in in revenue in the same quarter in 2014.

Apple beat its own expectations and Wall Street's. Analysts expected the company to pull in revenue of $49.4bn, while Apple forecast revenue of $46- to $48bn. The company didn't beat its record-breaking holiday quarter (when it made $18bn in profit and sold 74.5 million iPhones), but it's not exactly a fair comparison. This quarter is, however, always the strongest time for sales, and it always follows a new iPhone launch, when excitement is at its peak.

Apple's handset continues to be the company's sales juggernaut, raking in $31.37bn on 47.5 million devices sold. Apple sold 10.9 million iPads and 4.8 million Macs. The Mac market isn't growing spectacularly, but it is growing. As Cook put it, the Mac is showing 9 percent growth in a market that market-research firm IDC estimates contracted by 12 percent.

"We had an amazing quarter, with iPhone revenue up 59 percent over last year, strong sales of Mac, all-time record revenue from services, driven by the App Store, and a great start for Apple Watch," Apple CEO Tim Cook said in a statement. "The excitement for Apple Music has been incredible, and we're looking forward to releasing iOS 9, OS X El Capitan and watchOS 2 to customers in the fall."

Apple sold 11 million iPads during the quarter, generating $4.5bn in revenue – not a bad business. But those numbers are down substantially from the same quarter a year ago, and that's not a good sign. Sales of the iPad are still tailing off, not stabilising.

But Tim Cook is still a believer. He even digressed during a question about iPhone growth to give one of his regular pep talks about why he thinks the iPad still has a strong future. In addition to Apple's iPad-focused enterprise partnership with IBM, this time the CEO was able to cite new iPad productivity features that will come with iOS.

But in the end, its all about finding a time when people who already own iPads will decide it's time to buy a new model. "I believe that the iPad consumer upgrade will eventually occur," Cook explained, "because as we look at the usage statistics on iPad, it remains unbelievably great. I mean, the next closest usage of the next competitor, we're six times greater. And so these are extraordinary numbers. It's not like people have forgotten the iPad or anything, it's a fantastic product."

Apple Watch's strong debut

Analysts and journalists are dying to know how many Apple Watches the company sold, but those figures aren't broken out. They're in the "other products" category, tucked away with the iPod, Apple TV and Beats headphones. Those products brought in about $1.8bn in the third quarter last year, and $1.7bn in the second quarter of this year. This quarter: $2.64bn. We can't say for sure whether the Apple Watch pulled in almost a billion dollars on its own, but that's a pretty big jump in one quarter.

Cook said: "We made the decision back in September not to disclose the shipments of the watch, and that was not a matter of not being transparent, it was a matter of not giving our competition insight [on] a product that we worked hard on."

But while Apple doesn't want to reveal too much about how the Apple Watch is doing, Cook did say repeatedly that even with the company's inability to produce enough watches to fulfil demand, Apple sold more of the devices than the company's executives expected.

"Sales of the Watch did exceed our expectations, and they did so despite supply still trailing demand a the end of the quarter... In fact, the Apple Watch sell-through was higher than the comparable launch periods of the original iPhone or the original iPad," he said. "And so as I look at all of these things, we feel really great about how we did."

Knowing that everyone is hungry to hear about how the Apple Watch is doing, Cook tried to toss in a few more tidbits that provide information without giving away many details. Refuting reports that Watch sales started off well and then slumped, he said that June's sales were higher than those in April and May.

Several times during the analyst call, Cook pointed out that Apple's still learning about the Watch and hoping to build a product family that's successful in the long term. But Cook was excited that Apple has "learned a lot about the [Apple Watch] buying experience" and as a result, plans to expand their sales channel before the holiday. "We're convinced the Watch is going to be one of the top gifts of the holiday season."

Public beta programme launches

El Capitan and iOS 9 betas now available to download for free

BY SUSIE OCHS

It felt a bit like software Christmas on 9 July, with public betas of OS X El Capitan and a final version of Microsoft Office 2016 for Mac shipping to Office 365 subscribers (read our reviews on page 62). Your iPhone and iPad aren't neglected, though – Apple also launched the public beta of iOS 9.

A beta is a beta, so don't get swept up in the excitement and forget that this software isn't final and could have bugs. You might want to think twice about putting it on your everyday iPhone or Mac. That said, developers have already seen several betas of both iOS 9 and Mac OS X El Capitan and there haven't been any major problems.

The beta software programme started with OS X 10.10 Yosemite in 2014, and now it's providing betas of OS X 10.11 El Capitan. iOS 9 is the first version of iOS that is available as a public beta – before you had to join the developer programme for $99 (£64) per year to get prerelease versions of iOS. The public beta lets you avoid that expense, and will make it easier to install the beta too.

The final versions of Apple's new Mac and mobile software aren't expected to arrive until later this year, but expect lots of updates to the beta until then.
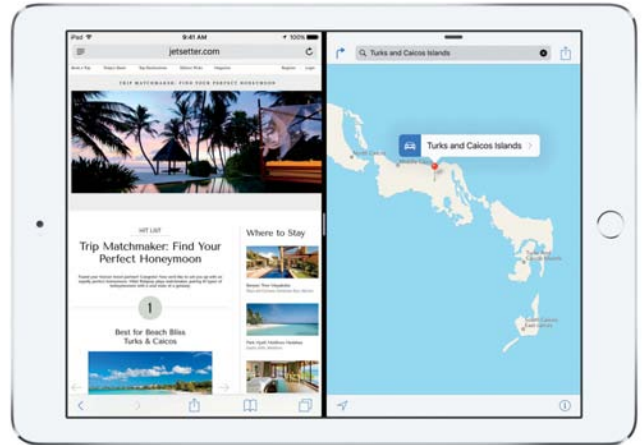
We've already seen an update to both operating systems in the programme, which arrived on 22 July, which included some tweaks and improvements.

Office 2016 for Mac released

But it's just for Office 365 – a standalone version will be released in September

BY MARK HACHMAN

After years of treating the Mac as an also-ran, Microsoft has changed its tune: it formally released Office 2016 for the Mac on 9 July, even before it released it for Windows. The only catch? If you're not already an Office 365 subscriber, you'll be forced to wait until September.

If you do subscribe to Microsoft Office 365 subscription service, obtaining the new software should be a snap. It includes Word, Excel, PowerPoint, OneNote, and Outlook, with a Mac-like feel to it all.

In the intervening five years since Microsoft last released a version of Office for the Mac (Office 2011), numerous other office suites have put down stakes on the Mac, not least of which has been Apple's own iWork productivity suite. But Microsoft's argument is that, with Office, your work is connected and stored in the cloud – available on basically whatever platform you wish. Microsoft has also tried to differentiate itself from other office suites by adding intelligence to both its software and data sets that you can connect to – providing up-to-date sales data in a spreadsheet, for example, rather than just a moment in time.

The new Office suite also addresses general shortcomings with the suite that Microsoft has struggled with, regardless of platform. A good example is real-time collaboration.
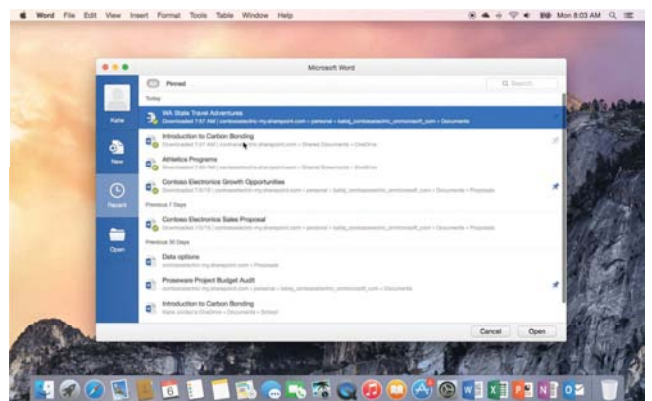
The newest addition to the suite is OneNote, Microsoft's note-taking app for Windows and mobile platforms

Apple Music FAQ

APPLE MUSIC HAS ARRIVED. HERE, WE SHOW YOU HOW TO SET UP THE SPOTIFY RIVAL AND ANSWER ALL YOUR APPLE MUSIC-RELATED QUESTIONS

By Lewis Painter

Apple Music is now available as part of iOS 8.4. Over the following pages, we'll talk you through the setup process, explain how to decide which Membership Plan is right for you and help Apple Music get to know you.

In addition to this, we've also put together a complete guide to Apple Music's features to help you make the most out of your free trial, as well as our top Apple Music tips.

How to set up Apple Music

If you've downloaded and installed iOS 8.4, you should notice that your Music app icon looks a little different. It's now
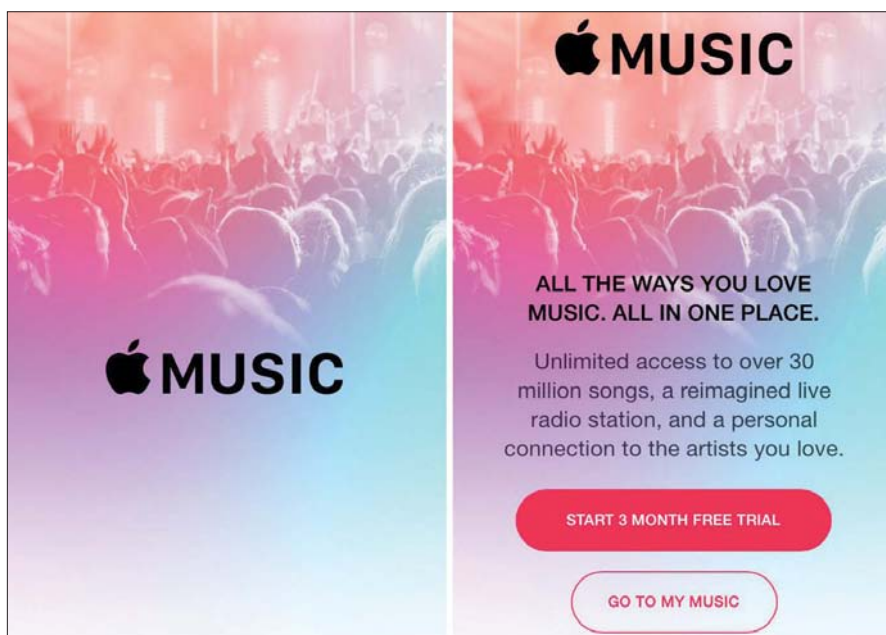
white with a rainbow-coloured note rather than orangey-red with a white note.

Tap that icon and you'll be greeted by the Apple Music logo, followed by a page that reads: "All the ways you love music. All in one place. Unlimited access to over 30 million songs, a reimagined live radio

station, and a personal connection to the artists you love." Sound good? Then you can click 'Start 3 month free trial'.

If you decide you don't want to use Apple Music, you can click 'Go to My Music' to access the music you have on your iPhone.
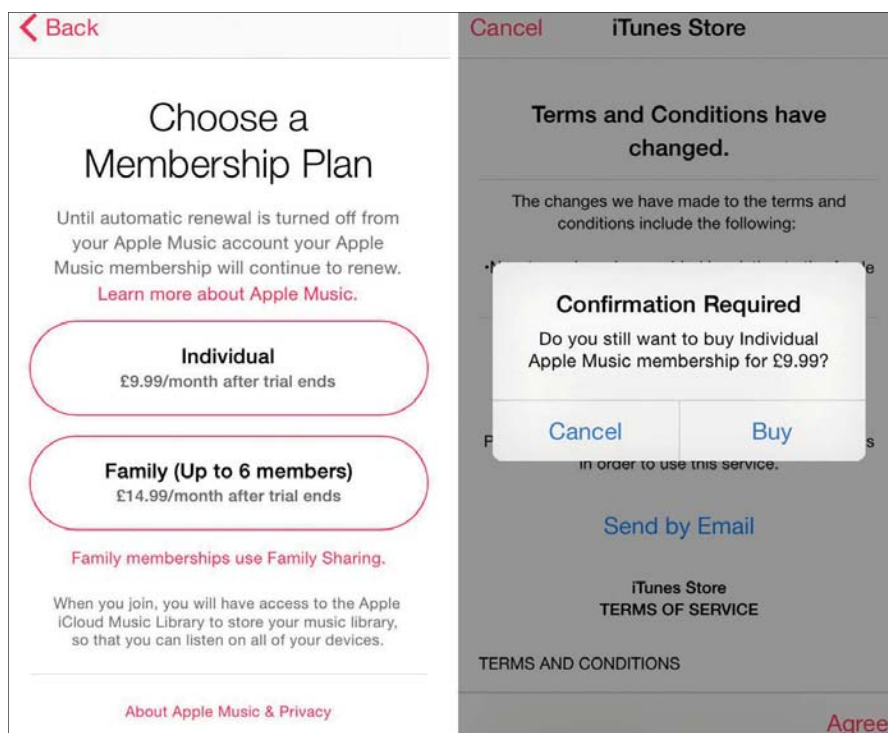
Other devices

As well as the Mac, iPad and iPhone, you can listen to Apple Music on the Apple Watch and iPod touch. It's also available via iTunes on the PC, and will be arriving on Apple TV later this year. There will even be an Android app arriving at some point this year.

Get Apple Music for free

In order to ensure that, when your three-month trial is over, you won't be charged, you'll need to go to your email account connected to your Apple ID and click on the email that you've received from the iTunes Store confirming your subscription.

There is a link at the bottom of that email that reads 'Manage subscriptions'. Click that, and if prompted, sign in with your Apple ID. There, you'll want to slide Automatic Renewal to 'Off'. Now, you won't be charged for Apple Music when your free trial runs out.

If you can't find the confirmation email, there's another way to access your subscriptions. Tap on the profile icon in the top left hand corner of the Apple Music app, tap 'View Apple ID', then tap 'Manage Subscriptions' and turn off the auto-renewal. It's that easy.

Choosing genres and artists

The first thing you'll need to do once you've started your free trial is to tell Apple what music you like, so that the service can pick out recommendations

Once you've tapped 'Start 3 month free trial', you'll be asked to select a membership plan. You won't have to pay for the first three months, but after that you'll be charged a fixed amount per month, depending on the plan you choose. If you don't plan on using Apple Music past the free trial, you can turn off automatic renewal (we'll explain how to do that in a moment.)

If you use Family Sharing, you can select the £14.99 Family Membership plan to share use of the service with up to six people. Most people, however, will want to pick the £9.99 Individual plan.

Slightly confusingly, when you choose which plan you want to join, you'll see a message that reads: "Confirmation Required. Do you still want to buy Individual [or Family if you chose that option] membership for £9.99?" You need to click buy, though you won't be charged despite what that message insinuates. You will get three months for free.

Set up on a Mac

This requires OS X 10.10.3 and is similar to the set up described above. If you have already set up Apple Music on your iPhone or iPad, you won't need to go through the setup on your Mac, and vice versa, as it will be linked to your Apple ID.

You need to enable the use of the iCloud Music library on all the devices you intend to use on it – you will see an alert when you first open Apple Music/ iTunes – if you originally said no, don't worry, there's a way to enable it manually.

On your iPhone, open *Settings ➜ Music* and toggle on the iCloud Music Library option under the Library subheading. For iTunes, go to *Preferences ➜ General* and make sure the 'iCloud Music Library' option is ticked, and click OK. Your music should start to sync soon after.

it thinks you'll enjoy. In the early days of Apple Music, there were complaints that the recommendations were off the mark, though we've found that over time they improve as Apple learns more about your tastes.

You'll first be asked to choose genres you like from a series of pinkish bubbles. Tap them once to say you like them, twice to say you love them, and if you dislike them, tap and hold to remove them. If you make a mistake, you can press Reset in the bottom-left corner. You can always go back and change your choices later.

Once you've finished, you'll see a similar page that now asks you to choose three or more artists that you like. You can double-tap the ones you like, while holding to delete proved to be a pointless task because artists we removed kept reappearing. You can tap more artists if you think that the selection chosen isn't to your tastes.

Tapping 'Done' once you've chosen your favourites will take you to the For You page, where you can get started with Apple Music.

Audio quality
Lets talk about music quality – Apple Music boasts 256kb/s music streaming, which falls into line with the streaming quality of iTunes Match. While this level of quality is fine for most people and won't consume too much data, it's worth noting that both Beats Music (ironically) and Spotify offer a slightly higher quality bitrate at 320kb/s.

Share Apple Music with family and friends
Apple Music offers two different membership plan options. There's an Individual plan for £9.99 per month, or a Family plan for up to six people, which costs £14.99 per month. It's worth noting that the three-month free trial is available for either membership, so you don't have to commit to paying for the service until September or October (depending on when you signed up).

In order to take advantage of the Family membership of Apple Music, you'll need to use Family Sharing,
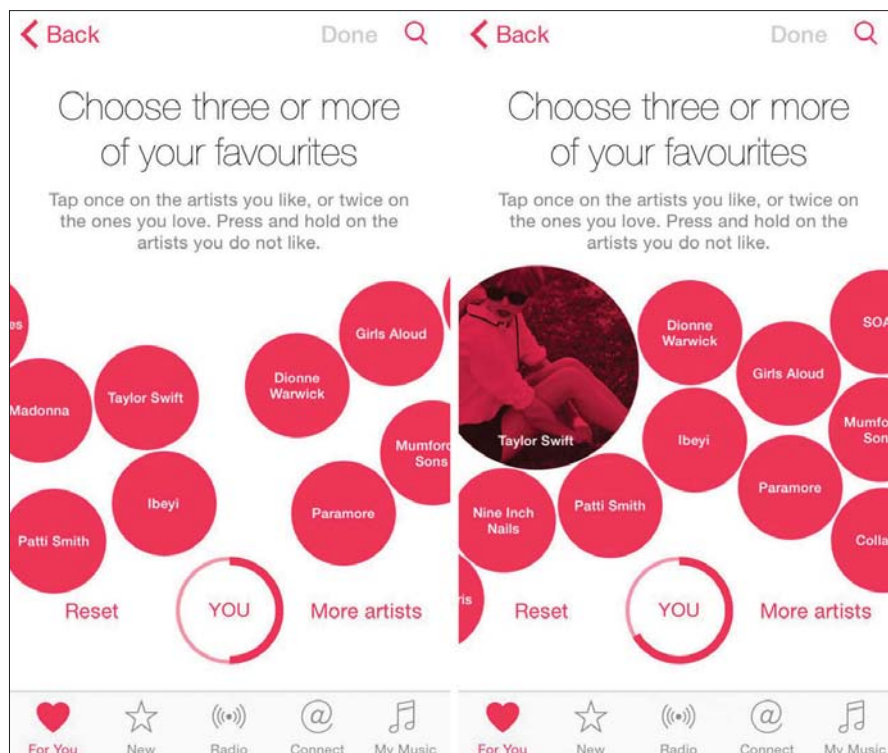
which means you will be the named card holder on the account and any transactions in iTunes or the App Store will be paid by you.

All six of the accounts need to be linked up to one credit card, which means any purchases can be shared. But, of course, it means whoever owns that card will have to pick up the bill for any purchases.

So yes, technically you can use the Family membership of Apple Music with friends, but they'll all be able to buy apps, TV shows, books, music and more using your credit card, so it's not ideal.

Save music to listen offline
Streaming such a huge library of music to your iPhone sounds like a great idea, especially for those of us that are conscious of the amount of storage available on our devices. However, there's also a downside to music streaming, especially over a cellular connection with data limits. There is, however, a workaround available, as Apple offers the ability to 'offline' as many songs and playlists as you want for the times when you have no data connection.

If you want to save a song or playlist for offline use, tap '...' next to the song/

playlist and tap 'Make available offline'. Depending on how many songs are being downloaded, it can take a few minutes for the process to complete, but you should be able to see the download progress from within the Apple Music app to give you some idea of its status.

It's important to note that even though the music is being saved locally, that doesn't make it yours. It is DRM-locked unless you buy the track. You won't be able to export the files for use anywhere else (video projects, burning CDs, and so on), and if your Apple Music subscription is cancelled, all the files will be deleted from your devices.

Start playing tracks that are similar to a song you like
You can create your own radio station based on a favourite song or artist. Find the song you like and tap '...' and then select Start Station.

Find out what you were listening to in Apple Music
If you have been listening to music all afternoon, you may later think that you would like to download some of those tracks. When we first started using

Apple Music, we didn't think it could display your listening history. However, it does. You just need to click on the list icon beside the forward and rewind buttons to go to the Up Next screen – scroll back and you will see all the tracks you have listened to.

Another thing you can do if you hear a track you love, is mark it by tapping on the heart icon. Unfortunately, you can't locate all the tracks you marked in this way. Or at least if you can we haven't discovered it yet.

Strangely, if you have a Smart Playing called Recently Played, you'll find some of the tracks you have played on Apple Music there, but not all of them. We can't figure out why only some of our recently played tracks are showing up here.

Build a playlist

You can build playlists with both the music you already own and tracks you find on Apple Music. Start by creating a new playlist. If you are on your iPhone you'll need to go to Playlists and then tap New. Find the track you like and tap on '...' to get to the menu and select Add to a Playlist. You can then locate the playlist you set up and add it.

How much data does music streaming consume when using 4G?

We ran tests at the *Macworld UK* office and found that when using a 4G connection, the data consumption for music streaming was around 1.65MB per minute, which equates to around 49.5MB of data per half an hour.

Interestingly, we also discovered that streaming Apple's Beats 1 radio station via a 4G connection uses more data than standard music streaming. We found that Beats 1 uses around 2.61MB of data per minute, which is equal to around 78.3MB of data per half an hour. We're not too sure as to why streaming Beats 1 uses more data as Apple streams all its

content at 256kb/s, but it's definitely something to keep in mind if you've got a capped data limit on your contract.

The difference between Beats 1 and Apple Music radio

Under the Radio menu of Apple Music, you have access to both Beats 1 and a number of other radio stations.

Beats 1 is more of a traditional station, with DJs broadcasting 24/7 in over 100 countries around the world. The main three Beats 1 DJs are ex-BBC Radio One host Zane Lowe from Los Angeles, Hot 97 DJ Ebro Darden from New York and Rinse FM's Julie Adenuga from London. It offers a combination of music, interviews with musicians and discussions of popular news.

Apple Music radio stations are slightly different. They aren't traditional stations with a DJ presenting, but rather playlists of songs that you can listen to and skip/ pause the music. In the past (with iTunes Radio), Apple has relied upon algorithms and beat-matching to produce playlists, however with Apple Music radio stations, the company has taken a different approach. The tech giant has employed a number of staff to curate the playlists themselves, handpicking songs from the vast library available to them. The end result is a better blend of music that flows between songs without making you think, "why is that being played?"

Do you need to pay for a subscription to Apple Music to listen to Beats 1?

The good news is that anybody with an Apple ID can access both the Beats 1 radio station and Apple Music's radio stations for free, without the need for a subscription. There is, however, a slight catch: Apple Music's radio stations will be ad-supported to non-Apple Music subscribers, and the number of skips will be limited. This doesn't apply to Beats 1

though, as it's one station for both non-subscribers and subscribers alike.

Add songs from Beats 1 to your playlists

As long as the song is still being played, you can tap the More button (three dots) and tap 'Add to My Music' or 'Add to a Playlist' to quickly add it to your music collection.

Request a song for Beats 1

If you've taken a look at the Beats 1 schedule, you'll probably have noticed that there are shows where you can request songs to be played on the air. Apple has set up a number of phone lines around the world that you can call to request music. The UK number is 0800 802 1238 and is free to call.

When you ring the request hotline, you'll be greeted with an automated voice prompting you to say your name, where you are from, what you are up to and what song you want to hear. This recording will then be played on the air if your request is chosen.

Transfer playlists from Spotify to Apple Music

While there is a way for Beats Music users to quickly transfer their music library to Apple Music, the same can't be said for the likes of Spotify, Tidal or any other music streaming provider. As it stands, the only way you'll be able to access all your Spotify playlists on Apple Music is if you manually search for each song and rebuild them yourself.

Does an Apple Music subscription give you access to the entire iTunes catalogue?

Unfortunately not – while there's a whopping 43 million songs available for download on iTunes, only (and we use that term lightly) 30 million songs are available on Apple Music.

That said, the library is still huge and will most likely feature your favourite songs – there are only a handful of noticeable missing artists, including The Beatles and Prince. It even features Taylor Swift's new album, *1989*, which isn't available on any other streaming service.

The good news is that anybody with an Apple ID can access both the Beats 1 radio station and Apple Music's radio stations for free

HOW TO USE
Apple Music

APPLE MUSIC IS APPLE'S NEW MUSIC-STREAMING SERVICE. HERE IS HOW TO USE APPLE MUSIC TO STREAM iTUNES TRACKS IN THE UK, GET RECOMMENDATIONS AND DISCOVER NEW MUSIC, AND CONNECT WITH THE MUSICIANS YOU LOVE. By Ashleigh Allsopp

Apple Music is Apple's new music streaming service. Aiming to take on the likes of Spotify and Tidal, it arrived on 30 June as part of the iOS 8.4 update. It comes in the form of a complete overhaul of the Music app, and being a completely new service, it takes a bit of getting used to.

Here, we talk you through all of Apple Music's features in our complete guide.

For You

The 'For You' section of the Apple Music app, which is accessible by clicking the heart icon in the bottom-left of the screen, is where Apple presents music and videos that it thinks you will love, based on what's in your music library and the genres and artists you chose during the initial setup process. Here, we'll talk you through the For You section bit by bit, to help you get to know it.

You can tap and hold on a suggestion for a menu that contains 'Recommend Less Like This', which will help improve your future recommendations

Improve your recommendations

When I first looked at Apple Music's For You, I was unsure how well it had worked – it was suggesting Justin Bieber's greatest hits and an old Shakira live album, both of which do not appeal to my musical tastes. However, when revisiting the app the following morning, Apple Music seemed to have the right idea. It suggested a Chilled-Out Pop playlist that was perfect for getting me through the morning commute, introduced me to several bands that I'll be checking out, and some interesting-looking albums.

Plus, you can tap and hold on a suggestion for a menu that contains the 'Recommend Less Like This' option, which will help improve your future recommendations. Whenever you see the little heart icon, tap it to let Apple know you like that song, album or playlist. This will also help the service get to know you and should improve the results.

You won't need to launch the Apple Music app if you're listening to a song you like when your phone is locked. The heart icon will also appear on the Lock Screen, which you can tap at any time to let Apple know you love it.

You'll find that you can scroll almost infinitely down Apple Music's For You page until you find something that takes your fancy. Swiping down from the top will also load a new set of playlist, album and artist recommendations.

Listen to playlists and albums from For You

Let's say, for example, that you want to listen to that aforementioned Chilled-Out Pop playlist, just tap the little grey play arrow on that 'card'. You'll then see an additional bar appear along the bottom, showing what song you're listening to and allowing you to pause it. You can tap that bar to see more details and controls
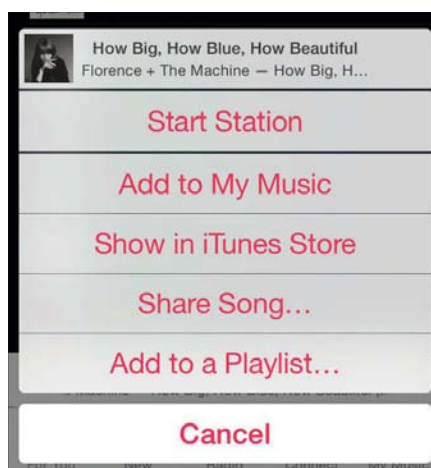
for the song itself. There, you can choose the more option that the three dots and three lines symbol, and rearrange the playlist in your Up Next queue.

Tapping the three dots on the right of that bar along the bottom will bring up a menu of options that you'll appreciate if you're enjoying the current song.

Other options include:

• **Start Station** will create a Radio station based on the song you're listening to, where you'll hear other songs from that artist and related artists.
• **Add to My Music** means you'll see that song when you go to the My Music section of the app. You'll be able to listen to it any time you choose from there. If you've already got the song in My Music, this option won't appear.
• **Show in iTunes Store** will allow you to purchase that song if you decide that you want to.
• **Share Playlist** or **Share Song** will bring up the share menu, so you can send it via AirDrop, Messages, Mail, Twitter, Facebook and more.
• **Add to Playlist** lets you add the song to a playlist you've already created.

You can take a closer look at the playlist (or album) by tapping on its title.
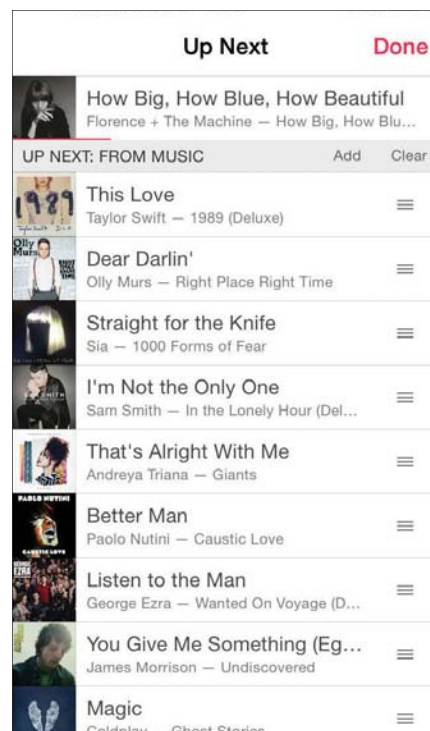
You'll now be taken to list of songs that are in that playlist.

If you really enjoy a particular playlist or album, you can add it and all of its songs to the My Music library by tapping the '+' icon. This will become a tick once they've been successfully added. If you change your mind, tap the tick again to remove it from My Music.

Tapping the heart icon will let Apple know that you like that playlist, helping it to tailor the 'For You' section further.

Then there's the share icon, followed by the 'More' icon. Tap this and you'll be able to tap 'Play Next' to add it to the top of your Up Next queue, 'add to Up Next' to add it to the bottom, 'Add' or 'Remove from My Music', 'Make Available Offline' for offline listening when you're unable to connect to Wi-Fi, and 'Share Playlist' again.

We'd recommend spending some time exploring the 'For You' section and playing around with it.

Offline listening

As mentioned above, you'll find the Make Available Offline option when you tap the More icon on any playlist, song or album. Tap it, and you'll find that the songs download to the My Music section of the app.
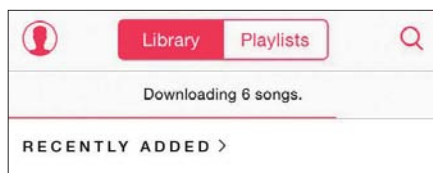
When you're offline, you'll find the songs you've downloaded in the My Music section, either in Playlists or Library depending whether it's a playlist or not. You can search for songs you've downloaded to listen to offline, tap the magnifying glass on the top right of the My Music section of the app.

You can test whether the song is stored for listening offline by turning on Airplane mode in the Control Centre and swiping up from the bottom of the screen. If you can play the song when Airplane mode is on, it'll be available any time you're out of Wi-Fi or 3G/4G range.

You can also make sure that the songs showing in My Music are only those available to listen to offline by clicking Albums and then turning 'Music Available Offline' on (it'll be green).

New

The New section is where you'll find the latest music and charts. When you first visit New, it'll be set to All Genres, and will show you a featured slider at the top, followed by New Music, Hot Tracks, Recent Releases, Top Songs, a Spotlight, and Discovered on Connect.

Find playlists to suit your mood, activity or favourite genre

Scroll down and you'll see three options: Apple Music Editors, Activities and Curators. This is where you'll find playlists you can listen to. Choose Apple Music Editors for the tracks Apple's dedicated team are enjoying. It's split into different genres, including Alternative, Blues, Children's, and more.

Activities is where you'll find Spotify-like playlists that are designed to suit your mood or, you guessed it, activity. These
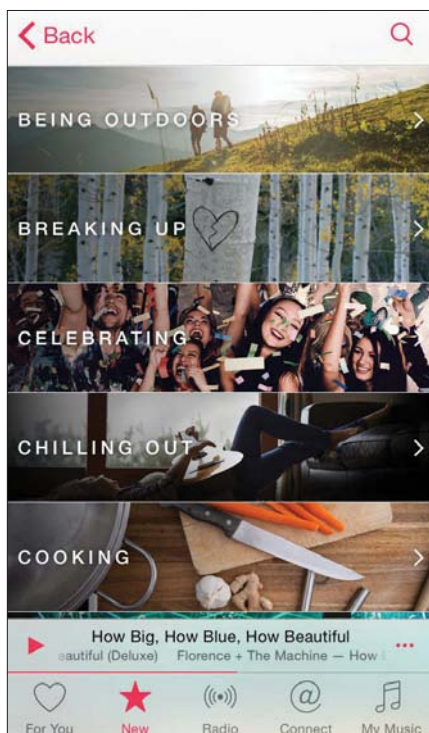
change, but I found sections for Being Outdoors, Breaking Up, Celebrating, Chilling Out and Cooking.

Within those different sections you'll find playlists. In the Being Outdoors option, for example, there's Sunshine Bike Ride, Saturday in the Park, Underneath the Stars and more.

Finally, there's Curators, which is where you'll find playlists put together by some big names in the music industry including *Rolling Stone*, *NME*, *Vice* and *Mojo* magazine.

Back on the All Genres New page, scrolling further shows even more options. You'll find 'Discovered on Connect' videos, more spotlights and playlists and The A List, which contains playlists of the very best of each genre according to the Apple Music team.

If you're looking for a particular genre, click All Genres at the top, and select the one you want to listen to. You'll see a similar New page now, but it'll be tailored to the genre you've chosen. You'll already know how to listen to,
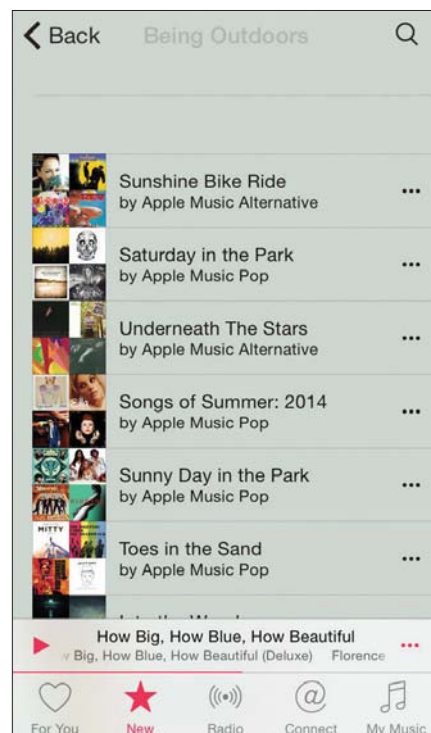
save and favourite playlists, songs and albums from the New section now that you've explored For You's features.

Radio

Now we come on to the Radio section of Apple Music, which is where you'll find the new Beats 1 Radio station, as well as various other Radio Stations, which are really just never ending playlists.

Beats 1 Radio

First off, we'll take a look at the star of the show, Beats 1 Radio. If you're wondering why it's called Beats 1, that's because Apple acquired Beats last year. In fact, the whole of Apple Music uses lots of Beats expertise.

Beats 1 Radio is an always-on radio station that broadcasts worldwide from three cities: London, Los Angeles and New York. There are three main DJs: Zane Lowe, Ebro Darden and Julie Adenuga.

When you tap the Radio tab in the centre of the navigation bar of the Apple Music app, Beats 1 will be the first option you get. Tap listen now and a bar will pop up along the bottom of the app to show you what song is currently playing. And just like when you're listening to any other playlist, album

If you select Playlists along the top of the Apple Music 'My Music' main page, you'll find your Recently Added playlists at the top

or song in the app, you can tap the song to see the associated artwork and tap the heart to let Apple know you like it. Tap the three dots to add it to My Music and listen again later.

In addition to songs, Beats 1 will also feature interviews with artists and more.

Other radio stations

Other radio stations available are slightly different. They don't have DJs and aren't live, so it's really an endless playlist that you can listen to. You can also skip tracks you're not enjoying.

Preset stations you can listen to include Charting Now, Pop Hits, Workout Anthems, Chill, Kids and Family, and lots more. Additionally, any time you're listening to a song, you can click the three dots in the bar along the bottom and choose Start Station to create a Radio Station that uses that song as inspiration for other tracks and related artists you my be interested in.

Connect

The next section of the Apple Music app is Connect, which is the social feature of the service. There, you can follow artists and bands, and see when they share photos, videos, messages and more with their Apple Music followers.

You can't post your own content, but you can comment on, like and share anything that an artist has posted. To like it, tap the heart. The number next to the heart represents how many others have liked that post.

Tap the speech bubble to see the comments that others have left, and to add your own that the artist might see. The share button brings up the usual share menu where you can send the post via Message, Mail, Twitter, Facebook, and more.

Follow and unfollow artists

You will automatically follow any artists in your My Music library. To edit who you follow, tap the icon in the top left corner which looks like a head – that's where you'll find your Apple Music account details. Here, you can tap Following and choose who you want to unfollow. You can also turn off Automatically Follow

Artists, or tap find more artists to see recommended artists that Apple thinks you might like to follow in Connect.

My Music

Finally, we've come to the My Music section, the fifth and final option you'll find along the bottom navigation bar. We've already talked a bit about it, as it links in to the other sections of the app, but let's take a closer look.

Tap Library, and you'll see your Recently Added songs, and by default you'll be shown albums in alphabetical order by artist. Tap on Albums to bring up the option to change to artists, songs, music videos, genres, composers and compilations to help you find what you're looking for.

There's also the aforementioned option to show only the music that is available offline, which is any music stored on your device, including the tracks you've saved for offline listening. If you have only added a song from Apple Music to your Library, you'll only be able to listen to it when you're connected to the web.

Tapping the three dots next to any song will bring up a series of options including Play Next, Add to Up Next, Start Station, Show in iTunes Store, Make Available Offline (if it isn't already), Show in iTunes Store, Share Album, Add to Playlist and Delete.

And, of course, tapping on a song will play it. If it's an album, you'll go to the album track list. If you've already got the complete album in your Library, you'll see them all there. If not, you'll see just the song you've added. With Apple Music,

you can tap Show Complete Album and listen to others.

You'll also get recommendations, including more by the album's artist and a 'You May Also Like', section.

If there's a particular song you have in mind that you want to listen to, you simply need to tap the magnifying glass at the top and type the name of the song that you want to listen to into the search bar.

You can choose to search the whole of Apple Music, or just your My Music library. Tapping the clock icon will show recent searches, and you'll also see Trending Searches, which can be another good way to discover new music.

If you select Playlists along the top of the Apple Music My Music main page, you'll find your Recently Added playlists at the top, as well as a list of all your playlists. Tap 'All Playlists' to change the view – you can choose to show only Apple Music playlists that you've added to your library, or only the playlists you've made yourself. You can also show only music available offline here.

Your account

The last thing to talk about is your Apple Music account. Tap on the icon in the top left corner of the app to go to your Account details. You can add a profile picture and choose your nickname by tapping on your name at the top and then tapping Edit.

Here, you can also go back through the setup process of choosing artists you like if you think your recommendations leave a lot to be desired. You can also edit the artists you're following there.
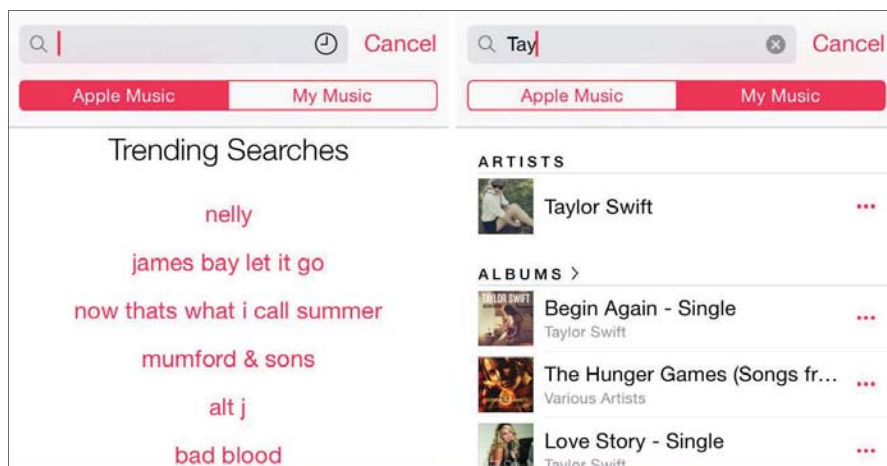
HOW TO GET APPLE MUSIC

SIGN UP TO APPLE'S NEW MUSIC STREAMING SERVICE
By Ashleigh Allsopp

If you are interested in accessing Apple Music this article explains how to sign up to the service. You'll also need to check your iOS device has iOS 8.4 and your Mac has iTunes 12.2.

iOS 8.4
Go to *General ➔ Software Update* and tap 'Download and install'. It's important to free up some space prior to updating as some update files can be quite large. You'll also need to have either (at least) 50 percent battery left on your device.

iTunes 12.2
Apple Music is also available on your Mac, via the iTunes 12.2 update. To get it, open the Mac App Store, and click Updates in the bar along the top of the window. You should see 'Updates are available for your computer', one of which will include iTunes 12.2. Click Update and when your Mac restarts, you'll find Apple Music in the iTunes app.

Select a membership plan
There is no ad-fuelled free-tier option unlike Spotify, but Apple will instead offer a free three-month trial, after which you'll have to pay £9.99 a month to use the full streaming service. There's also a family plan, which is £14.99 per month.

When you first launch Apple Music, you'll have to choose which subscription model you want to start your free trial. You'll see a pop-up that reads "Confirmation Required. Do you still want to buy Individual Apple Music Membership for £9.99?"

We think this is a bit misleading, but you will not be charged for the first three months and you can cancel your subscription at any time. You'll get an email confirming that you've started your three month's free trial and that you will not be charged until it is over. You can turn off auto-renewal to make sure you do not get charged by clicking Manage Subscriptions at the bottom of that page and turning Automatic Renewal to off.
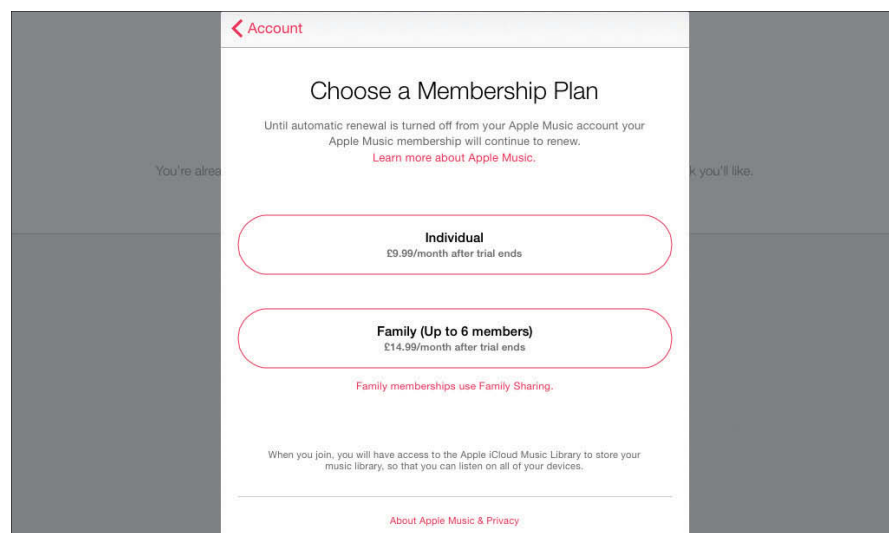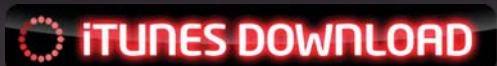
APPLE MUSIC TIPS & TRICKS

GET TO KNOW APPLE MUSIC WITH THESE TIPS
By Caitlin McGarry and Susie Ochs

After signing up for your free three-month trial of Apple Music, you've probably made some playlists, scoped out the app's recommended albums, and listened to Beats 1 for awhile. So now what?

We've combed through Apple Music to find the neat little features that can make your streaming experience better – and no, we're not just talking about banishing Connect altogether, though you can do that, too.

Listen to Beats 1 playlists off the air

If you're getting frustrated with Beats 1 radio because you keep missing all the great parts, such as Zane Lowe's first hour spinning music on the station or St. Vincent's Mixtape Delivery Service, don't worry – you can listen to them later.

The easiest way to do this is using Connect to follow Beats 1's curators, such as hosts Ebro Darden, Julie Adenuga, and Lowe, or a specific artist's show, like the Mixtape Delivery Service. Within hours of airing, the playlists from those shows will be available to stream.

You can also look for Beats 1 in the search bar, and playlists from Darden, Adenuga and Lowe will pop up in the results under Playlists, though you'll miss out shows hosted by your favorite artists. Alternatively, open the Radio tab, tap the big Beats logo (but not the Listen Now button), and then scroll down past the schedule to see the Featured Shows, and tap any you find interesting to Follow them and see the past shows as playlists.
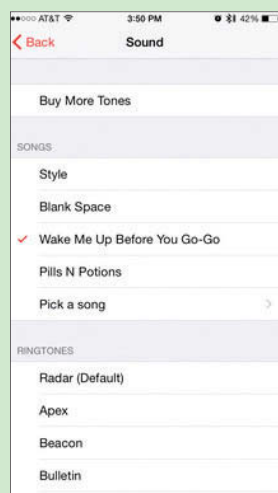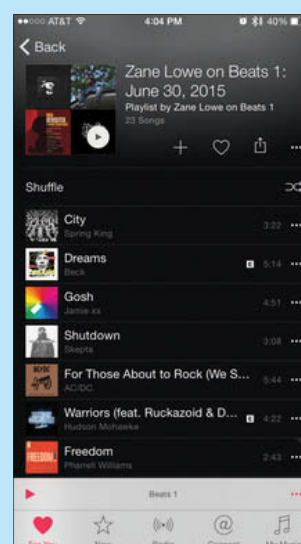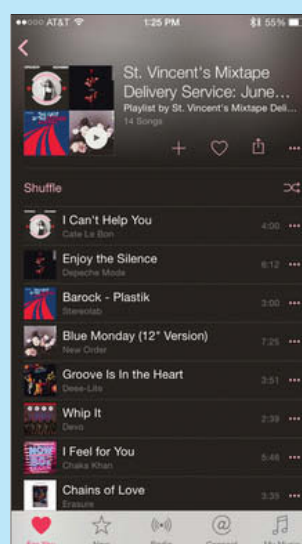
Stream a song to wake you up

Many of us already use our iPhones as alarm clocks, but with Apple Music, alerts just got a whole lot more fun. First, make sure to add the songs you want to use for your alarms to My Music. Next, open *Clock ➜ Alarm* and either add a new alarm or edit an old one. Above the standard ringtone selection you would normally pick from, there's an option to pick a song from your Apple Music catalogue. The possibilities are endless.
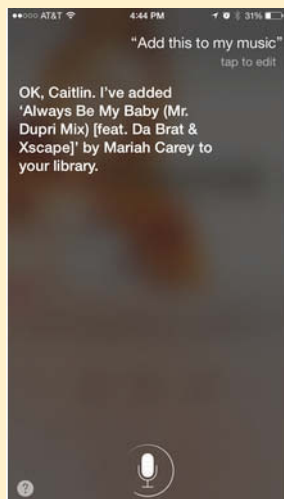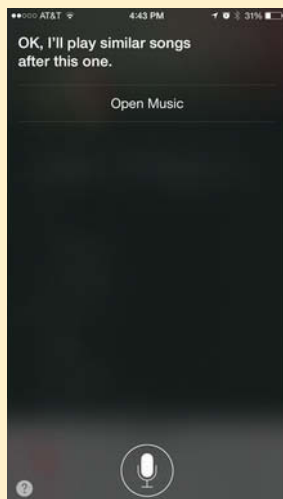
Make friends with Siri

Siri makes Apple Music infinitely more useful in all sorts of surprising ways. Here are a few of my favourite Siri capabilities when it comes to managing my tunes.

When you're listening to a song, say, "Play more like this one," to create an immediately personalised playlist tailored right to your mood. You don't even have to know the name of the song you want to listen to. Just ask Siri to play hits from a certain year or that one song from that one TV programme, and she knows what to do. Siri can shuffle play any playlist or album you want her to. Siri can add songs to your collection.

You don't even have to have the Music app open for Siri to work her magic, which is my favourite part. She can be your personal DJ without any effort on your part, which is a feature no other streaming service can beat.

Constantly improve your recommendations

When you signed up to Apple Music, you will have told it which genres and artists you love (and hate). The app will then have used that information to create some pretty on-point playlist, artist, and album recommendations in the For You section. But you can keep fine-tuning your preferences with every song you listen to, so that one day Apple Music will know exactly what you want to hear.

Use the heart button liberally on songs and playlists, so Apple Music knows what you like. Hate something recommended to you in For You? Give it an extra long press and more options will appear. At the bottom, tap on Recommend Less Like This. Eventually, your recommendations will be perfectly on point.
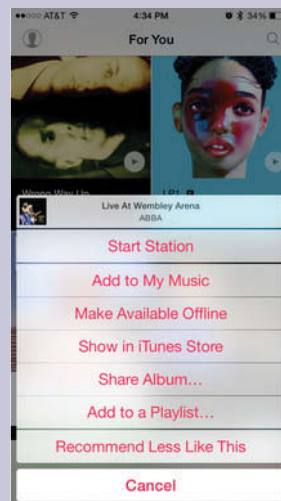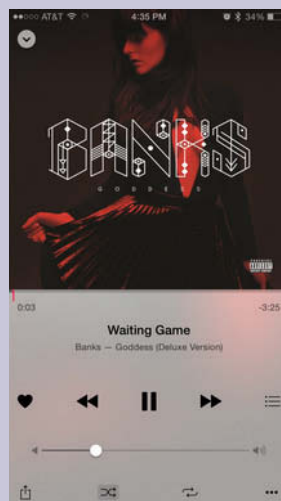
Or just pick new favourites

If you didn't do a good enough job selecting your preferred genres and artists when you first launched the Music app, you can give yourself a second chance. Go to the For You tab, then tap the silhouette icon in the top-left corner to open your account page. Then just tap 'Choose Artists for You', and you'll get to do the whole thing again. Remember, tap once to like a genre or artist, tap again to really like it, and tap and hold to make the ones you don't care for disappear. Slide the display back and forth with your finger, and on the artist screen you can tap 'More Artists' to see additional choices.
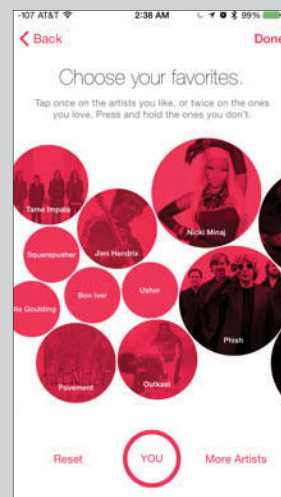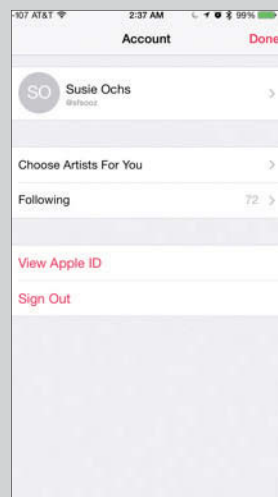
Personalise playlists with photos

Your playlists have different names (I assume), but they all sort of look the same, marked by an icon with a grid of album covers indistinguishable from the next. Now you can customise each soundtrack with a photo instead, but only when you're first creating a playlist. Go to *My Music → Playlists → New* and tap on the Camera button in the top-left corner. From there you can add an image from your Camera Roll or take a new photo. If you want to change it later, go to the playlist, tap Edit, and then tap the little camera icon that appears over the playlist's cover image.

Apple Music also uses the primary colour in your photo to customise your playlist's background colour, which is a nice touch.
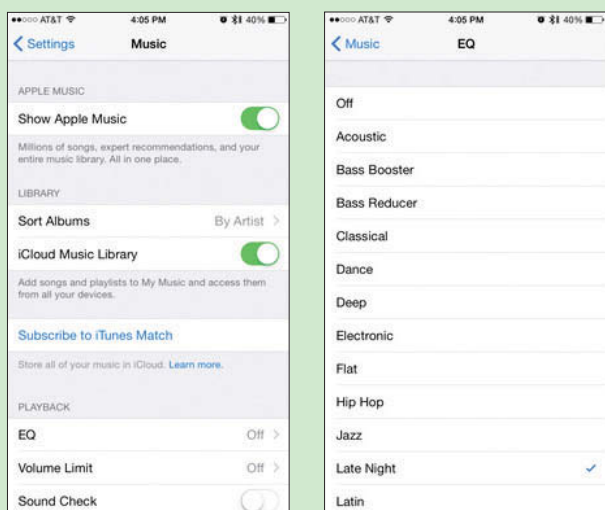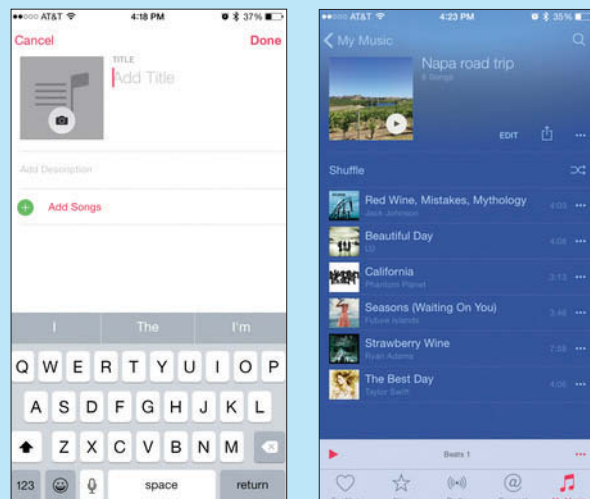
Music in loud spaces

If you're trying to block out the world and jam to your tunes in peace, the Music app has a setting for easier listening in loud spaces such as trains. Go to *Settings → Music → Playback → EQ* and tap the Late Night option. According to Apple, this setting will "compress the dynamic range of audio output," which tones down loud sounds, so they won't be so loud and pumps up the sound on quiet parts, so you won't have to constantly mess about with the volume controls to find an even keel.

Tweak a For You playlist's order

It's easy to shuffle a For You playlist – each one has a Shuffle button at the top. Alternatively, tap any song to begin the playlist at that point and play the rest in order.

But if you want to tweak the order to your exact liking, or even ditch a song before it plays, just start the playlist going and then tap the mini player, and the Up Next button. Then you can drag the songs into a new order by pressing the hamburger button (three lines in a stack) and dragging them up or down, or swipe right-to-left on a song you don't want to hear and tap Remove.

Note that this doesn't alter the playlist permanently. If you've saved it to My Music, it'll still appear in its original order, with all the songs present. If the curator changes it later, it'll update in your collection automatically.
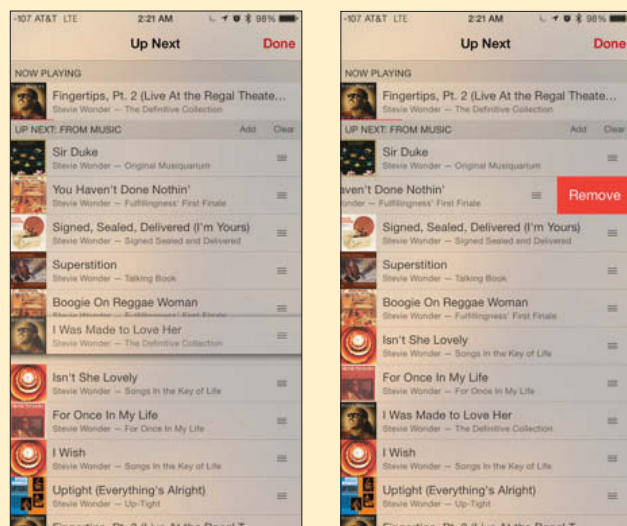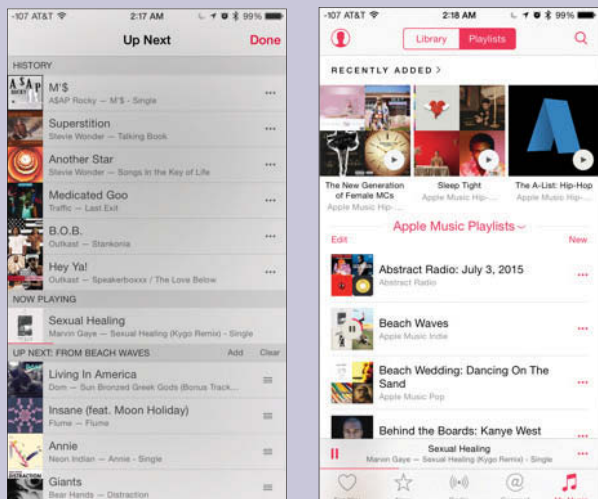
MUSIC

The history of music

Apple Music has a hidden history list. Just open the Up Next queue, which shows you what's coming up, and then scroll up to see what you've already played. Music you've added to your collection recently can be seen in the My Music tab, which has a Recently Added section at the top of both the Library and Playlist views. It only shows you three things to start, but tap the words Recently Added to see more.

See the album, or more from the artist

One thing I like about Rdio is that long-pressing a song gets you clear options to View This Album, or see more by the same artist. Apple Music lets you make those jumps too, but they're not as obvious. First, tap the Ellipsis button next to a song, and at the top of the contextual menu that appears, you'll see the name of the song along with the artist and album name, with a thumbnail of the album art (left screengrab). Tap on that to see the full album. Seeing the rest of the artist's work is one more tap away, but it's not obvious either: you have to tap the name of the artist above the album's track list (right screengrab), which is quite small.
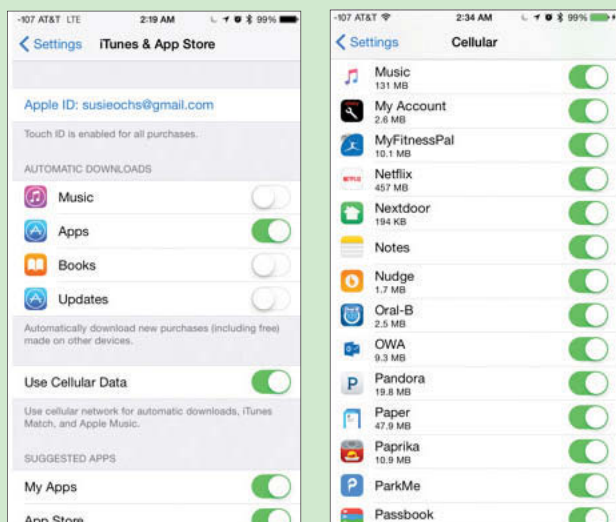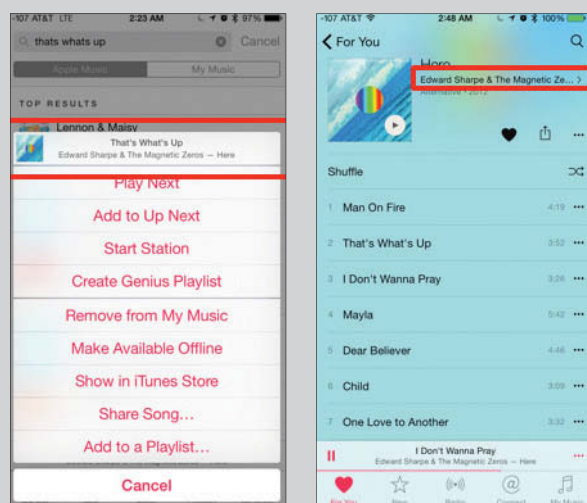
Listen over cellular, but watch your data

If you get an error that you can't listen to Apple Music without Wi-Fi, go to *Settings ➜ iTunes & App Store*, and turn on the switch to Use Cellular Data.

Strangely, there's also a switch to allow the Music app to use cellular data in *Settings ➜ Cellular* that should do the same thing – and that menu even shows you how much data the Music app has consumed since the iOS 8.4 update, or whenever you last reset your stats.

How iTunes Match and Apple Music work together

THE RETURN OF DRM ON YOUR MUSIC FILES By Kirk McElhearn

I f you have an iTunes Match subscription, and you've updated to the latest version of iTunes (12.2), you may have had a bit of a surprise. There is scant mention of iTunes Match in the iTunes interface, and it can be confusing trying to figure out how iTunes Match works in the new iTunes landscape.

If you've signed up for Apple Music, then it can be even more confusing, since Apple Music also matches tracks the way iTunes Match does. Here's an overview of how these two services work in iTunes and on iOS, and how they work together.

While iTunes Match lets you download your music files and play them anywhere, Apple Music adds DRM to your files.

Independent but complementary

On the membership section of the Apple Music website, Apple states that "Apple Music and iTunes Match are independent but complementary." It says little more, and when you look at the latest version of iTunes, it's not clear how iTunes Match works. The first thing to understand is that Apple is no longer using the name 'iTunes Match', at least within iTunes. It is now part of the iCloud Music Library, which includes the following:

- Purchased tracks (previously called iTunes in the Cloud)
- Tracks matched or uploaded with iTunes Match
- Tracks matched or uploaded with Apple Music

Turn on iCloud Music Library in iTunes.

- Streaming tracks that you've added to My Music, if you have an Apple Music subscription

You may not have all of the above. If you don't have an iTunes Match subscription and haven't signed up for an Apple Music free trial, then your iCloud Music Library will only contain purchased tracks, if any.

The iCloud Music Library, therefore, contains multitudes. To make sure that you can see these cloud-stored tracks in iTunes, choose *iTunes → Preferences*, click General, and check iCloud Music Library. On iOS, open Settings, and then choose *Music → iCloud Music Library*.

You can subscribe to either iTunes Match or Apple Music from the Account menu in iTunes. If you've already signed into these services, you won't see the iTunes Match and Apple Music menu items.

While iTunes Match and Apple Music seem to offer similar features via iCloud Music Library, there are some important differences. Here's how each one works.

| Á | iTunes | File | Edit | View | Controls | **Account** | Window | Help |

Apple Music…
iTunes Match…

Update Genius
Turn Off Genius

Authorize This Computer…
Deauthorize This Computer…
Deauthorize Audible Account…

Sign In…
Create Apple ID…
Check for Available Downloads…

Subscribe to either iTunes Match or Apple Music, or both, from this menu.

iTunes Match

With an iTunes Match subscription, iTunes matches your library, uploads any unmatched tracks, and makes your music available on multiple devices through the iCloud Music Library. If you have low-quality tracks, iTunes Match 'upgrades' them, allowing you to download 256kb/s AAC files without DRM. You can also download your files to any computer linked to your iTunes Match account, and listen to your music on any linked iOS device. It has a limit of 25,000 tracks, not including iTunes Store purchases.

Apple Music

While the main feature of Apple Music is streaming from Apple's massive collection of music, the service also matches your music library and uploads tracks that aren't in Apple's library. Plus, there's a 25,000 track limit, as with iTunes Match, but Apple's Eddy Cue has said that this limit should be increased to 100,000 when iOS 9 is released. (It's not clear whether the increase will also affect iTunes Match, but it's likely that both services will get the boost.)

There is, however, one essential difference between the two services. While iTunes Match lets you download your music files and then play them anywhere, Apple Music adds DRM to your

My music library is a mess. I have an iTunes Match subscription, and many of my matched or uploaded tracks now show as Apple Music tracks, and contain DRM when I download them. This is an album I bought from the iTunes Store in 2009; its tracks show as either Matched or Apple Music, but they should show as Purchased.

files. This means that if you rip a CD and it's matched or uploaded to iCloud Music Library via Apple Music, and you download the files, say, on another Mac, you will only be able to play those files as long as your Apple Music subscription is active. If you delete your originals or lose them, then you won't be able to access files without DRM. As such, it is essential that you keep backups of your original files if you use Apple Music.

If you have both an iTunes Match subscription (£21.99 per year) and an Apple Music membership (£9.99 per month), then you get files without DRM.

The problem is that Apple is not making a distinction between Apple Music files that you download for offline listening – this is a key feature of Apple Music – and files that belong to you, which are matched or uploaded. In addition, there seem to be bugs right now, causing many previous matched files to show as Apple Music files, and to contain DRM when downloaded, even for users with iTunes Match subscriptions.

Many users are seeing this problem with matched files showing as Apple Music files (with DRM), and this is presumably a bug that Apple will fix. But, for now, if you download any of these files, they will be locked with DRM, and you'll only be able to play them as long as you have an Apple Music subscription.

Which is best?

The main issue is the integrity of your iTunes library. If you already have an iTunes Match subscription, I'd recommend you keep it, whether you plan to subscribe to Apple Music or not. If you want to continue using iTunes Match as such, it is now part of iCloud Music Library. If you also want to use Apple Music, that, too, is part of iCloud Music Library.

If you don't use iTunes Match, and only want to pay for Apple Music, then be aware that your original music files will have DRM added to them if you redownload them. Make sure you have a reliable backup of your library.

1	✓	Hard Times In New York Town (12/22/1961)	⬇	Apple Music	2:19	Bob Dylan
2	✓	He Was a Friend of Mine (11/20/1961)		Matched	4:02	Bob Dylan
3	✓	Man On the Street (11/22/1961)	⬇	Apple Music	1:57	Bob Dylan
4	✓	No More Auction Block (Late 1962)		Matched	3:02	Bob Dylan
5	✓	House Carpenter (3/19/1962)	⬇	Apple Music	4:09	Bob Dylan
6	✓	Talkin' Bear Mountain Picnic Massacre Blues (…		Matched	3:44	Bob Dylan
7	✓	Let Me Die In My Footsteps (4/25/1962)		Matched	3:32	Bob Dylan
8	✓	Rambling, Gambling Willie (4/24/1962)		Matched	4:12	Bob Dylan
9	✓	Talkin' Hava Negeilah Blues (4/25/1962)		Matched	0:51	Bob Dylan
10	✓	Quit Your Low Down Ways (7/9/1962)	⬇	Apple Music	2:40	Bob Dylan
11	✓	Worried Blues (7/9/1962)	⬇	Apple Music	2:39	Bob Dylan
12	✓	Kingsport Town (11/14/1962)	⬇	Apple Music	3:29	Bob Dylan
13	✓	Walkin' Down the Line (1963)	⬇	Apple Music	2:52	Bob Dylan
14	✓	Walls of Red Wing (4/24/1963)		Matched	5:03	Bob Dylan
15	✓	Paths of Victory (8/12/1963)	⬇	Apple Music	3:18	Bob Dylan
16	✓	Talkin' John Birch Paranoid Blues (10/26/1963)	⬇	Apple Music	4:25	Bob Dylan
17	✓	Who Killed Davey Moore? (10/26/1963)	⬇	Apple Music	3:09	Bob Dylan
18	✓	Only a Hobo (8/12/1963)	⬇	Apple Music	3:30	Bob Dylan

GETTING STARTED WITH
APPLE MUSIC

WE WALK YOU THROUGH THE SETUP PROCESS
By Caitlin McGarry and Susie Ochs

Are you ready to rock? Apple Music is. After its unveiling at WWDC in early June, the music streaming service went live in July. This handy guide will walk you through the setup process, so you'll be up and running – and dancing – in no time.

Update to iOS 8.4

Usually I recommend you do this the smart way, which is to tether your iOS device to your Mac, open iTunes, click your its name in the toolbar, do a full encrypted backup, and then apply the iOS update. That way if anything goes wonky during the installation, you'll have a backup to restore to.

But as of right this second, iTunes is telling me iOS 8.3 is the latest version, while my iOS device's Settings app is offering me the update to iOS 8.4. So go ahead and update over-the-air if you're not seeing the update in iTunes – usually you'll be just fine.
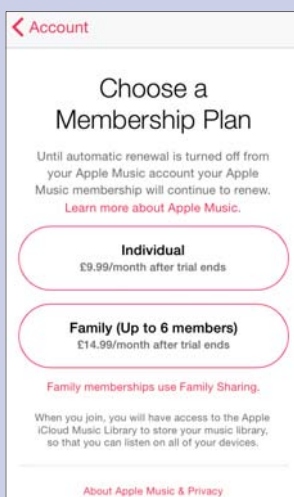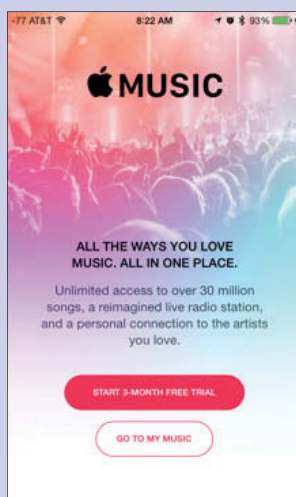
Open the Music app and start the trial

Open up the Music app, and you'll see that Apple has placed its music streaming service front and centre. If you aren't interested, there's a button to tap to just go to your regular music library. But we're going to tap 'Start my free trial' instead. The next screen has you pick a plan to kick in once your trial is over: £9.99 a month for individuals, or £14.99 per month for families (which requires the use of iCloud Family Sharing). You won't be charged now, but when your three-month trial runs out, Apple will charge the credit card you use for iTunes purchases. Sign in and tap OK.

Pro tip: To keep Apple from charging you, make sure you disable the subscription from kicking in when the trial ends.

Tell it what you like

The Music app has tabs across the bottom. Tap the 'For You' tab at the far left, and you'll see a screen filled with red bubbles listing musical genres. Tap the genres you like (the bubble will grow), and tap twice on the genres you really love (the bubble grows even larger). If you hate something, tap and hold it to make it go away. If some of the bubbles start to nudge offscreen, you can drag the whole group around with your finger to access them again. Tap Next at the top-right to move on. The next screen shows artists in your favourite genres. Same drill: tap once to like, twice to love, hold to disappear. If you're like me and haven't heard of half of them, tap More Artists to get a new set (the ones you've already tapped will stick around). Tap Done when you're finished!

See what Apple suggests For You

The For You tab will now be populated with the artists, albums, and curated playlists Apple Music thinks you'll enjoy. The more you use the service, adding music to your collection, tapping the heart to favourite tracks and just listening, the better Apple Music's recommendations should get.

When you get to the bottom of the list, don't despair. Pull down on the screen to get more suggestions. Baffled by some of its choices? Tap and hold a recommendation for a hidden menu that contains a 'Recommend Less Like This' option.
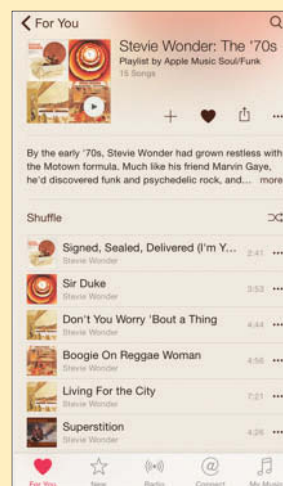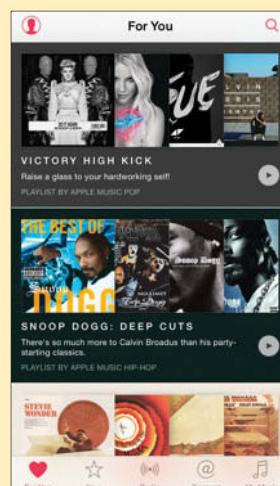
Navigate around while the music plays

When you're in the Now Playing screen, there's a little downward-facing arrow at the very top-left. Tap that to minimise the player, and you can navigate around the rest of the app. Tap over to the New tab. When you see something you want, tap it to see more details. The '+' sign adds that item to your collection. The heart isn't a shortcut to a favourites list – it helps Apple's algorithm learn your tastes to improve its recommendations. At any time, you can tap the player, which is a strip just above the row of tabs at the bottom, to expand it again.
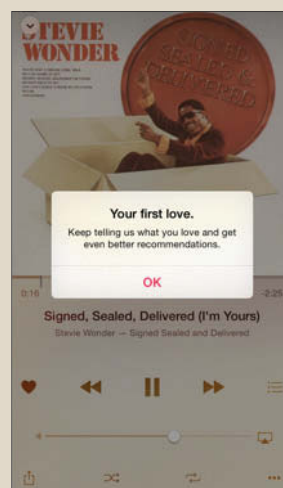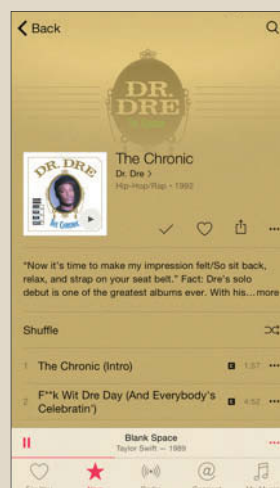
Add songs to your queue

The ellipsis button next to each song and album holds the most options. This is where you can add a song or album to your Up Next queue. (Play Next puts it at the top of that queue, while Add to Up Next just puts it at the bottom.)

To see or reorder your Up Next queue, tap the button on the Now Playing screen that looks like a list. The Up Next screen has little buttons to Add more songs, Clear the queue and Resume the last thing you were listening to. To reorder the queue, tap the hamburger icons by each song and drag them up or down.
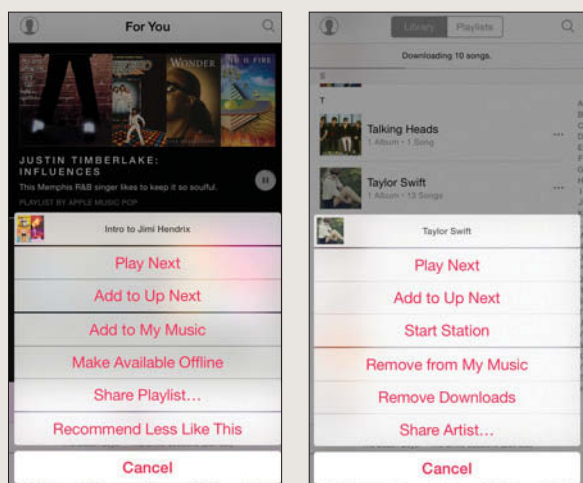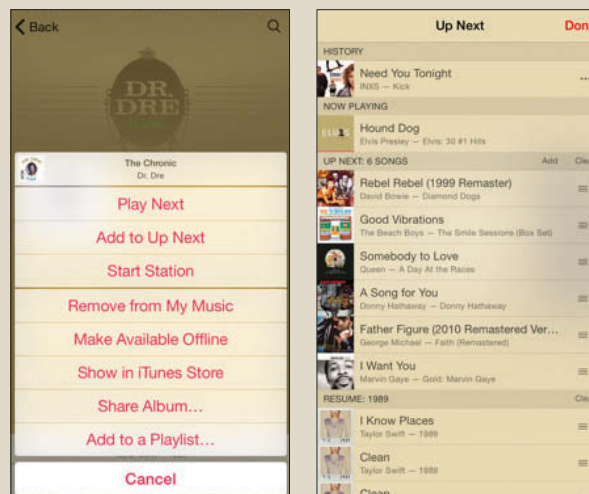
Save some music for offline listening

Also in the ellipsis menu, you can add items to your collection, and optionally save them for offline listening. (Only items in your collection can be saved for offline.) This puts a copy of the files inside the Music app on all of your devices, so you don't have to be connected to listen – crucial if you're going to take a plane trip, or you just don't want your streaming to hit your data plan while you're away from Wi-Fi.

Music you've synced for offline listening appears with a tiny iPhone logo on the corner of the album art. If you need some storage space, find the album you want to delete in the My Music tap, tap the ellipsis button and select Remove Downloads.

Share with friends

The ellipsis menu has sharing options too, letting you send the link to a song or album to your friend via AirDrop, iMessage, email, Twitter, Facebook, and so on. Strangely, you can't have a list of friends who also have Apple Music, and send stuff to each other via Connect. Rdio and Spotify, for example, have in-app friends lists, so you can keep track of what your friends with excellent taste are listening to, send each suggestions right inside the app, and even subscribe to and collaborate on each other's playlists.
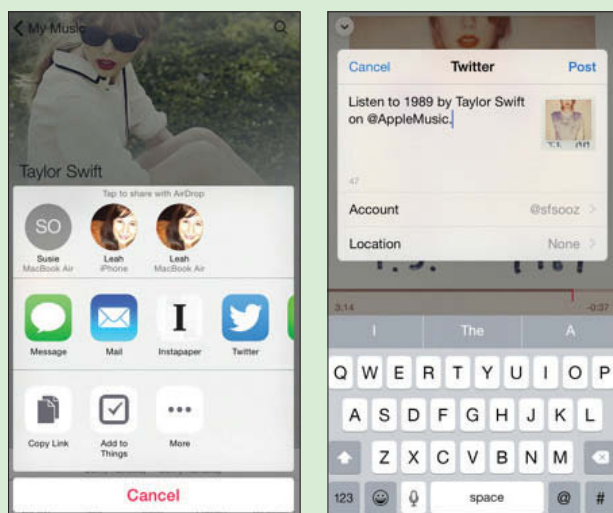
Feel the Beats

Apple's Beats 1 radio station features 24/7 programming, with live DJs and interviews. You can't skip tracks on Beats 1 – it works just like terrestrial or satellite radio, all you can do is turn it on or off. Tap the Now Playing strip to see the name of the band and song, and you'll be able to tap a heart to favourite the track. Tap the share button to share either the song or the station, and tap the ellipsis button for the rest of the options. You can start a new streaming station based on that track (that would be a Pandora-style station where you can skip tracks), or add them to the My Music collection, to a playlist... or, of course, buy them on iTunes.

The Radio tab has Pandora-style radio stations with no DJs, too. You are allowed to skip tracks, heart tracks, add them to playlists or My Music, share them, or see them in the iTunes Store.
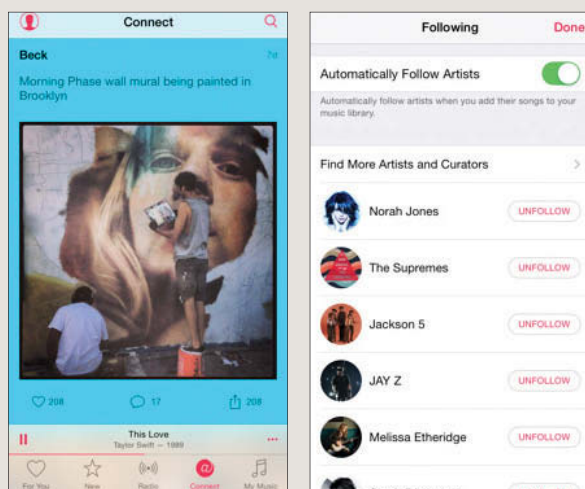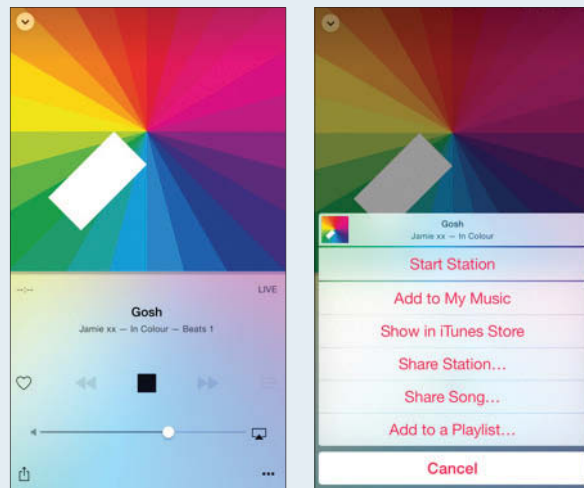
Connect to your favourite artists

The Connect tab is a one-way stream of content from artists on Apple Music. (Again, you can't have a list of your own friends to interact with, like you can in Spotify and Rdio.) By default, it follows all the artists in your iTunes library and anyone you add to your My Music collection. That could be a lot of artists, so tap 'See who you're following' in the banner up top for a switch to turn off the auto-follow behaviour, as well as a list of all the artists you're following, in case you want to unfollow any. If you're hungry for more, tap 'Find more artists and curators' for Apple's recommendations.

It's early days, so Connect doesn't have a lot in it yet. Right now you'll see Twitter-style updates, mostly artists asking you to listen to their tracks or albums. Hopefully as the service matures, the Connect tab will get more compelling.
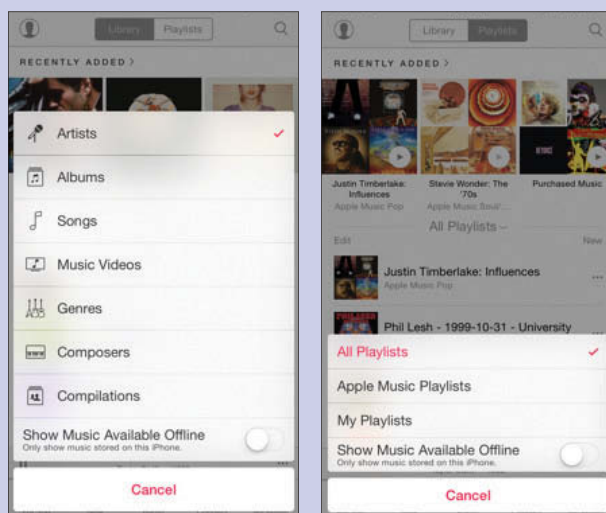
Your music is still here

The My Music tab holds your music – everything you have purchased in iTunes, and everything you already had synced to your iPhone before you updated to iOS 8.4 – along with everything you add to the My Music collection from elsewhere in the Apple Music app. It's separated into Library and Playlists sections, and you can make a new playlist by tapping the tiny New button below the Recently Added strip.

The Library tab defaults to sorting by artist, but you can tap Artists to change the view to Albums, Songs, Music Videos, Genres, Composers and Compilations. If you're trying to save bandwidth, flip the switch to only see the music that's available for listening to offline. The Playlists tab lets you tap the word Playlists to change the view to just Apple Music playlists, just the playlists you've made yourself, or just whatever's synced for offline listening.

Apple Music isn't revolutionary, but it might help launch the next big thing

APPLE MUSIC IS HARDLY THE WORLD'S FIRST STREAMING SERVICE. IT MIGHT NOT EVEN BE THE BEST. BUT IT ALSO DOESN'T FEEL LIKE A 1.0 PRODUCT
By Michael Simon

Apple Music might be the most un-Apple product the company has ever released. The people who rushed to download iOS 8.4 just to be among the first to sign up for the three-month free trial didn't find the revolutionary and pioneering features that usually accompany Apple releases. If you've ever used Spotify or Beats, Apple Music is pretty much exactly what you would expect from a modern streaming service: Lots of songs, unique playlists, and genre-based radio stations.

That's not to say it's bad. Apple has exploded onto the streaming landscape with an excellent music client that elevates the user interface and experience, but truth be told, there isn't much about the core concept that you can't get elsewhere. A little Spotify, a dash of I Heart Radio, and a few cups of Beats: Apple Music is more of an amalgam of the best parts of other services than a uniquely Apple product. With the exception of a few high-profile exclusives like Dr. Dre's *The Chronic* and Taylor Swift's *1989*, the Cupertino streaming service follows the model established by its peers and integrates it with your owned music library.

But none of that is going to matter to the tens of millions of people who will
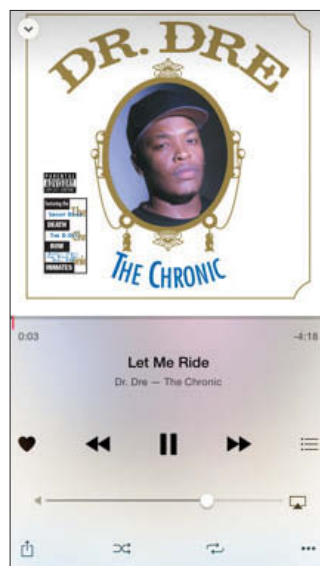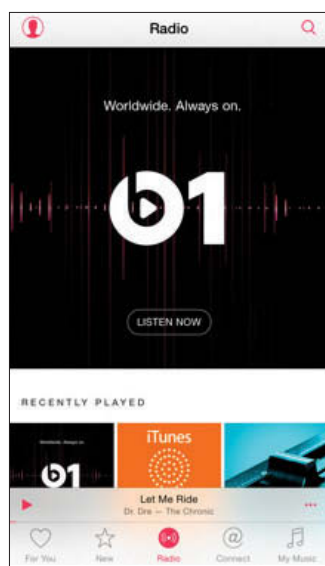
Besides a few exclusive albums and its integration with your personal library, Beats 1 is the only major feature that sets Apple Music apart from its competitors.

become paying subscribers once their free trial ends at the end of September. With Music, Apple is muscling its way into a very established market and using its significant cash and clout to build an instant customer base. It's a different sort of tact for the company, and one that could very well change the way it approaches internet services, not just for streaming music but for its whole cloud platform.

Ahead in the cloud

Apple has never been known for its internet services. From MobileMe to iCloud, Apple has tried for years to implement a seamless, integrated suite of internet services that combines the power and versatility of Dropbox, Gmail, and Flickr under a single roof. It's been a hit-or-miss affair, with spotty roll-outs and glaring omissions that don't stack up to its would-be competitors.

It's different with Apple Music. Last May, the tech giant made a big splash by buying the Beats brand for upwards of $3 billion, an out-of-character purchase for a company generally more interested in snatching up smaller companies with far less global reach. But Beats represented
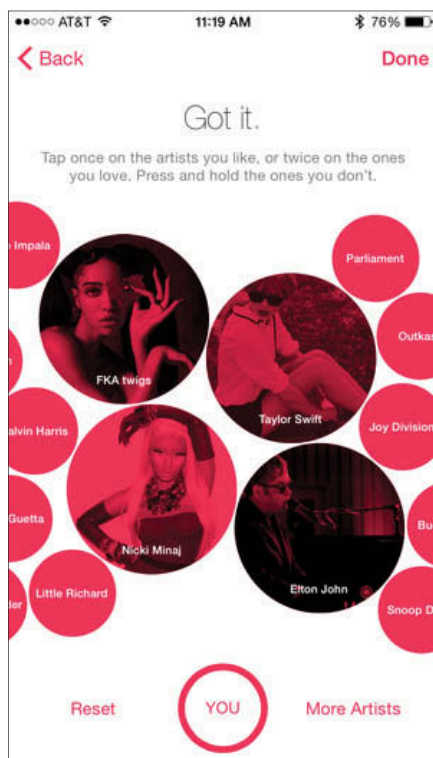
Setting up your 'For You' profile in Apple Music feels like Beats Music's setup process.

everything Apple needed to jump into the streaming business with both feet: an influential brand, a well-connected charismatic executive, and a strong service. This isn't Google buying Nest or Facebook buying Instagram – in about a year's time, it was able to turn one of the least-popular streaming apps into a major Apple-branded service that comes preinstalled on every iOS 8.4 and Mac OS 10.10.4 device.

Consequently, Apple Music won't experience the same growing pains that iCloud has. Apple could have built a streaming service from the ground up – and I have no doubt the company toyed with such an idea – but it saw an opportunity with Beats to hit the ground running. With a solid foundation already in place, Apple can focus on the things that will set its music service apart instead of ironing out deep wrinkles or even convincing people of its value.

Look and listen
Few people will remember that iTunes wasn't a home-grown product either. The idea of a desktop MP3 player wasn't

exactly a novel concept at the time of iTunes' release, but it wasn't nearly as ubiquitous as today's streaming services. When Apple bought SoundJam MP it was an under-the-radar purchase that barely made a ripple. Back in 2000, few people could see the future of digital music like Steve Jobs – he wasn't just buying a desktop MP3 client, he was putting a down payment on the future.

With Beats, Apple made an equally large investment, paying a sizable sum to get into a game that is already teeming with major players. Apple Music won't be a slow build like iTunes was: the ecosystem is already in place, and Apple's biggest advantage over its competitors is the little things it can add to make the experience more seamless. Siri integration alone is reason enough for Spotify users to make the switch, and the excellent discovery features will surely keep people tuned in as well.

But the killer component is the easy integration with your existing library, a feature that I suspect will be iOS-only. If Android users miss out on the iTunes Match feature, Apple Music loses some of its lustre, and I suspect it's a ploy to woo Moto and Galaxy owners once the app lands (right around the time they start reading all those glowing reviews for the latest iPhone in the fall).

Apple might have overpaid for Beats based on strict market value, but what it brings to the company is priceless. Buying Beats eliminated years of stumbles and hiccups, and puts Apple Music on an even plain with the best services out there. If it succeeds – and there's no reason to suspect it won't – I expect Apple to apply this business model to the other internet services it offers, snatching up companies that do

it right instead of trying to go it alone. It famously made a nine-figure offer to Dropbox back in the file storage service's early years, but Apple was a different company then. Steve Jobs was forever reluctant to buy established, big-name companies, and it's hard to imagine him signing off on a purchase as big as Beats. But today's Apple is far more aggressive, and has no problem with spending money to keep its customers happy.

I could see Apple making similar splashy purchases to fill other holes in its portfolio of products. With more money than it can possibly spend, Apple can easily afford go on a shopping spree without taking on much risk at all. Even multi-billion dollar acquisitions of companies such as Twitter, Netflix, or Square are no longer off the table. Any one of them would work extremely well under Apple's umbrella, expanding its ecosystem and bringing new worlds of entertainment and communication into the fold.

Buying in
Where the iTunes Music Store fundamentally changed our relationship with music, paving the way for the proliferation of Spotify, Rdio, and others, the most groundbreaking thing about Apple Music is how it was born. The tech giant studied the landscape and bought a company that had the pieces it needed – it may have momentarily skated to where the puck was, but it was only to hit it further up the ice.

With the launch of Apple Music, Apple has made a product that's distinctly theirs by building on the groundwork Beats had already laid. It's more than a rebranding: the core technology may be built on the strong foundation it bought, but the way it is incorporated into the existing services is Apple's gambit. All things being equal, I don't know why an iPhone user would stick with Spotify.

Apple Music is certainly a very nice service. But its eventual paying subscribers won't just be paying for millions of songs. They'll be investing in the next step.

Siri is a pretty big selling point, too.
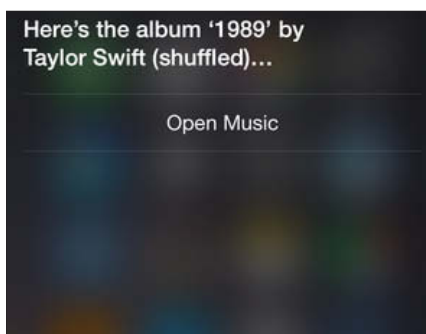
How to (mostly) banish Apple Music from your iPhone or iPad

YOU GET TO KEEP BEATS 1 AND THE STREAMING STATIONS, BUT THE FOR YOU AND NEW TABS WILL DISAPPEAR. (CONNECT CAN GO OR STAY.) PLUS, YOU CAN GET THEM BACK ANYTIME By Susie Ochs

If you've been left unimpressed by the new Music app, you may be wondering whether you can return to the version of the app you had in iOS 8.3. Unfortunately, you can't. On the plus side, you can scrub a lot of the Apple Music stuff out by turning off the app.

To do so, head to Settings, scroll down to Music, and tap that for the Music app's settings. You'll see a 'Show Apple Music' slider. Turn it off.
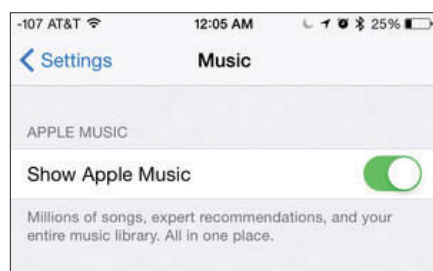
This won't delete your Apple Music account or destroy your Apple Music collection, saved playlists or anything. The service will remain visible on any other device you have it enabled on. If your trial is already over and you're now paying monthly, you'll still be charged monthly. You just won't see Apple Music in that Music app anymore.

Instead, you'll see another refreshed Music app, with the same icon. Inside, the For You and Now tabs will have gone,

and with them the bulk of Apple Music. The tabs along the bottom include My Music, Playlists, Radio, and Connect. (If you turn off Connect in Settings ➤ General ➤ Restrictions, you lose the Connect tab, but nothing replaces it.)

My Music tab

The My Music tab shows your iTunes purchases and songs you have already synced to your library. It defaults to Album view, with a side-scrolling Recently Added list on top. Tap the word Albums to switch the view to Artists, Songs, Music Videos, Genres, Composers, or Compilations instead. A switch here labelled 'Show music available offline' removes any iTunes in the Cloud purchases and only shows music stored locally on your device.

Playlist tab

Over in the Playlist tab, you'll find your playlists, as well as any Apple Music playlists you already saved to your collection (since you didn't really quit Apple Music, you just banished it). The Radio tab has some Apple Music

The Radio and Connect tabs stick around, although you can hide Connect in Settings ➤ General ➤ Restrictions.

goodness too, namely Beats 1 radio, along with a list of other stations. Sadly, you can't save these as favourites like you could before.

If you miss Apple Music, it's no problem. Just head back to Settings ➤ Music to turn it back on. You can toggle Apple Music on and off in iTunes too, in iTunes ➤ Preferences ➤ General.
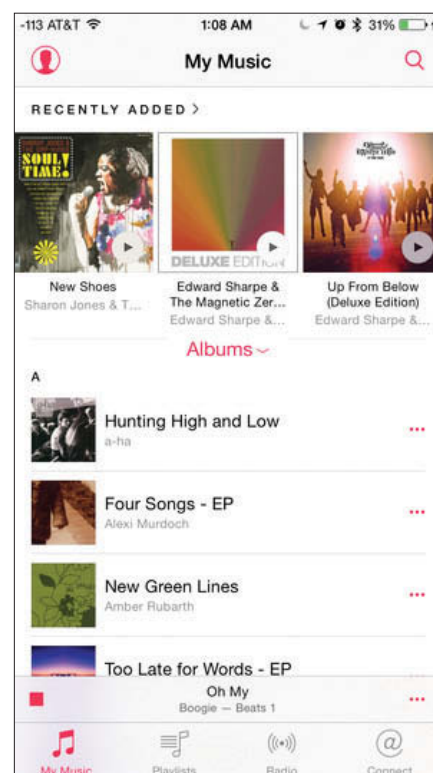
Which Apple MacBook should you buy?

WHEN IT COMES TO PURCHASING A MACBOOK, WE'VE GOT THE LOWDOWN ON EACH MODEL TO HELP YOU MAKE A BUYING DECISION

By Roman Loyola

If you're reading this article, the chances are you're thinking about buying a new MacBook and may be in need of some guidance. Fortunately, we're familiar with Apple's laptops, and we're happy to help you choose the right one for you. This guide provides an overview of all the models available, and what each one is best suited for.

MacBook Air

What is it? The Air is Apple's affordable line of laptops. It's available in two screen sizes: 11in (1.08kg) and 13in (1.35kg).

Who's it for? It's ideal for the budget conscious, and for anyone who is always on the go, doesn't want to be bogged down by a regular-size laptop, and needs a computer that's more versatile than an iPad.

What are the specifications? The four MacBook Air models share the same 1.6GHz dual-core Core i5 processor. They also have 4GB of RAM and integrated Intel HD Graphics 6000 technology. Apple claims nine hours wireless web use and 10 hours of iTunes movie playback of battery life for the 11in models. The 13in Airs offer 12 hours for both wireless web and iTunes movie playback.

The main difference between the laptops is storage. The £749 11in option and the £849 13in Air have 128GB of flash storage, while both the £899 11in model and the £999 13in system have 256GB.

How do I connect stuff? The Air has built-in Wi-Fi for connecting to a network, and Bluetooth for wirelessly connecting a mouse or other peripheral. If you want to connect to an ethernet network, you'll need a USB ethernet adaptor. Thunderbolt 2 is its high-speed connector. This laptop also has a pair of USB 3.0 ports, which can work with devices that use USB 2.0. If you have a FireWire 800 drive, you'll need to buy a Thunderbolt-to-FireWire adaptor (£25).

How fast is it? The Air is capable of handling everyday tasks, such as sending and receiving email, browsing the web and using office applications. You can even use it for editing short videos, or for working with JPEGs from your iPhone or point-and-shoot camera.

The flash storage also helps its performance. For example, the MacBook Air outperforms the 13in non-Retina MacBook Pro, which uses a hard drive (SSDs for the 13in non-Retina MacBook Pro are available for an additional cost).

Macworld's buying advice: The MacBook Air is a great affordable laptop for anyone who does general-purpose work and needs a lightweight system for the daily commute, for example. Since it's at the lower end of Apple's laptop line-up in terms of price, you won't find the Retina display that's in other MacBooks. Also, you can't easily upgrade the storage after purchase, so you should buy the model with the largest amount of storage you can afford.

MacBook

What is it? The MacBook is Apple's latest entry-level ulta-portable. It's actually lighter than both the 11- and 13in Airs and smaller than the 13in option.

Who's it for? It's been designed for those who prioritise mobility over everything else, including features and performance.

What are the specifications? The MacBook is only available with a 12in display, though there are three colour options: space grey, gold and silver.

The entry-level £1,049 model has a dual-core 1.1GHz Intel Core M processor and 256GB of flash storage, while the £1,299 laptop has a dual-core 1.2GHz Intel Core M processor and 512GB of flash

MacBook Air

The MacBook Air is a great affordable laptop for anyone who does general–purpose work and needs a lightweight system for the daily commute

storage. Both options have 8GB of memory, and an integrated Intel HD Graphics 5300 chip.

The ultra-high resolution screen has a native resolution of 2304x1440 pixels.

How do I connect stuff? The MacBook has Wi-Fi for connecting to a network and Bluetooth for your devices. There's just one USB-C port for connecting storage devices, printers, external displays, power adaptors, or anything else.

At the time of writing there are no USB-C peripherals available, so you'll have to use a USB-C to USB adaptor (£15) to connect USB 3 and USB 2 devices. For ethernet, you'll need the USB-C to USB adaptor and the USB ethernet adaptor (£25). If you want to connect a HDMI display and USB devices, you'll have to get the USB-C Digital ACV Multiport Adaptor (£65), while a USB-C VGA Multiport Adaptor (£65) will allow you to connect a VGA display.

How fast is it? The MacBook's Intel Core M processor has been designed to be efficient and cool. That means it's not a top-performing processor – in fact, this is the slowest of Apple's laptop offerings. That said, it can handle everything your typical user does on a daily basis, as well as some high-end, professional production tasks. It just won't be the fastest to the finish line.

Macworld's buying advice: The MacBook is for anyone who's constantly on the go and seldom needs to connect devices – be prepared to carry a bunch of adaptors to connect peripherals. It seems a good indicator of the direction Apple plans to go with its laptop line: thinner with fewer connectors. Even if you decide not to go with a MacBook, it's good to take a look at it and prepare yourself for what Apple has planned for the future.

MacBook Pro with Retina display

What is it? The Retina MacBook Pro has a high-density display, with so many pixels that images and text looks smooth and clean. At normal viewing distances, you can't discern individual pixels.

Who's it for? This system is for the user, who needs a laptop that while portable is still powerful enough for more demanding tasks. Indeed, it's Apple's best performing MacBook.

What are the specifications? The Retina MacBook Pro is available in two screen sizes: 13- and 15in.

There are three 13in models. The entry-level £999 option has a 2.7GHz dual-core Core i5 processor, 8GB of memory and 128GB of flash storage. The £1,199 laptop has a 2.7GHz dual-core Core i5 processor, 8GB of memory, and 256GB of flash storage. Last but not least, the £1,399 MacBook has a 2.9GHz dual-core Core i5 processor, 8GB of memory, and 512GB of flash storage. All three 13in systems have an Intel Iris Graphics integrated graphics processor.

Apple has two 15in Retina MacBook Pros. The £1,599 option has a 2.2GHz quad-core Core i7 processor, 16GB of memory, 256GB of flash storage and Intel Iris Pro integrated graphics. The £1,999 model offers a 2.5GHz quad-core Core i7 processor, 16GB of memory, 512GB flash storage, Intel Iris Pro integrated graphics, and a discrete 2GB AMD Radeon R9 M370X graphics processor.

Unsurprisingly, the screen is the Retina MacBook Pro's marquee feature. The 13in options have a native resolution of 2560x1600 pixels, while OS X offers a scaled resolution up to 1680x1050 pixels. The 15in MacBooks have a native resolution of 2880x1800 pixels, and OS X's highest scaled resolution on those laptops is 1920x1200 pixels. These high-scale resolutions can accommodate the workspace of a larger-screen standard Mac laptop on a smaller Retina MacBook Pro, if you can tolerate the smaller icons, text, and other graphics on screen. If you use a third-party app such as QuickRes, you can set the Retina screen to use resolutions higher than the scaled settings OS X offers, including the native resolution.

How do I connect stuff? No need to worry about wireless connectivity: this MacBook has both Wi-Fi and Bluetooth.

It's the wired connectivity you need to be concerned with. The Retina MacBook Pro has two Thunderbolt 2 ports, two USB 3.0 ports, an HDMI port, and that's it. If you want to connect a FireWire device, you'll have to use a Thunderbolt-to-FireWire Adaptor. Fortunately, you can use USB 2.0 devices with the USB 3.0 ports. If you wish to connect to an ethernet network, you'll need a USB ethernet adaptor.

How fast is it? The Retina MacBook Pro's processors, flash storage and 8GB of memory combine to produce impressive performance. The 15in models can keep up with the stock configuration of the £1,049 iMac, which has a 2.7GHz quad-core Core i5 processor and a hard drive. Both the 13- and 15in Retina MacBook Pros are faster than the stock configurations of the Mac mini. And they offer a significant performance boost over their non-Retina counterpart (see below).

MacBook

MacBook Pro with Retina display

The 13in MacBook Pro and 13in Air is an interesting comparison. In multi-core tests, the 13in Retina MacBook Pro has a significant advantage – well over 20 percent faster – over the 13in MacBook Air. If you use professional apps, such as Final Cut Pro, Logic Pro or another production app, you're better off with a MacBook Pro instead of an Air. The story is a little different with single-core apps – the software most people use everyday, such as a web browser, email or even iMovie and GarageBand. Here, the MacBook Pro is up to 20 percent faster, though you may not notice a difference in speed in your browser or writing app.

Macworld's buying advice: For the most demanding mobile Mac user – someone whose work requires a lot of processing power – the Retina MacBook Pro is the ticket. If you're looking at a 13in model, then the £1,199 Retina MacBook Pro hits a sweet spot for price and performance. The money that separates the two 15in models is a hefty chunk of change; the £1,999 option is the top-of-the-line Mac laptop, offering the strongest performance. If, however, your work mostly involves internet access and other productivity tasks, go for a MacBook Air.

MacBook Pro

What is it? Before the MacBook Pro with Retina display existed, there was the MacBook Pro. This laptop has a standard, non-Retina display.

Who's it for? The standard MacBook Pro is for the user who wants a portable computer that doesn't make many

sacrifices. It isn't as fast as an iMac desktop system, but it can be faster than the MacBook Air at certain tasks.

What are the specifications? Apple sells just one 13in model. Priced £899, it has a 2.5GHz dual-core Core i5 processor, 4GB of memory, a 500GB 5400rpm hard drive, and an integrated Intel HD Graphics 4000 graphics subsystem. You can customise your order with a faster processor, more memory, a larger hard drive, or a solid-state drive.

The standard MacBook Pro is the only Mac laptop with a built-in SuperDrive. If you need to burn or read optical discs, and you'd rather not use an external drive, then this is the laptop for you.

How do I connect stuff? Like all Mac computers, the standard MacBook Pro has built-in Wi-Fi and Bluetooth. It also continues to offer ports that Apple no longer offers in any of its other laptops – for example, it has a FireWire 800 port.

If you don't want to carry an adaptor for your FireWire drive, then the standard MacBook Pro is your only choice.

It also has a gigabit ethernet port, which you can't find on the MacBook Air and the Retina MacBook Pro. Like all Mac laptops, it has two USB 3.0 ports.

How fast is it? It's slower overall than the 13in MacBook Air – blame the performance hit on the MacBook Pro's hard drive, which can't keep up with the Air's flash storage.

Macworld's buying advice: This is for the mobile user who doesn't want to sacrifice a lot of features. The hard drives create a performance bottleneck, so if you want to improve this consider replacing the hard drive with an SSD. If you want a laptop for travel and can't decide between a standard MacBook Pr and a Air, go with the latter unless you need built-in FireWire. You might also consider a Retina MacBook Pro.

MacBook Pro

iWork special

GET MORE FROM APPLE'S OFFICE SUITE By Mark Wood

Learn how to use Apple's spreadsheet application – Numbers

The Apple productivity applications – Pages, Numbers, and Keynote – are available on OS X, iOS and iCloud. Currently, these applications have differing levels of features depending on the platform. Unsurprisingly, the Mac versions are the most feature rich, followed by iOS. Each edition seems to be heading for a convergence where there may come a day when the applications are identical.

We start this iWork special with a set of tips built around the multi-platform nature of Numbers. The starting point is Numbers for Mac, though you will also see how the its spreadsheets can be shared to iPads for ease of data input.

1. Use Numbers as a giant pinboard

Numbers isn't just a spreadsheet application. The tables that can be placed on the 'sheets' are spreadsheets, but a sheet can also contain multiple tables, charts and media such as photos, graphics, sound clips or even movies.

The software can also be used as a flexible and expansive pinboard that performs data analysis. Let's say you are researching a new business idea. You can copy text and images from web pages and other documents, then paste them into Numbers as either text boxes or image objects. This creates a pinboard on which you can add tables to develop your budget plans. Other scenarios could include school science reports, where videos of experiments are included. Numbers comes with
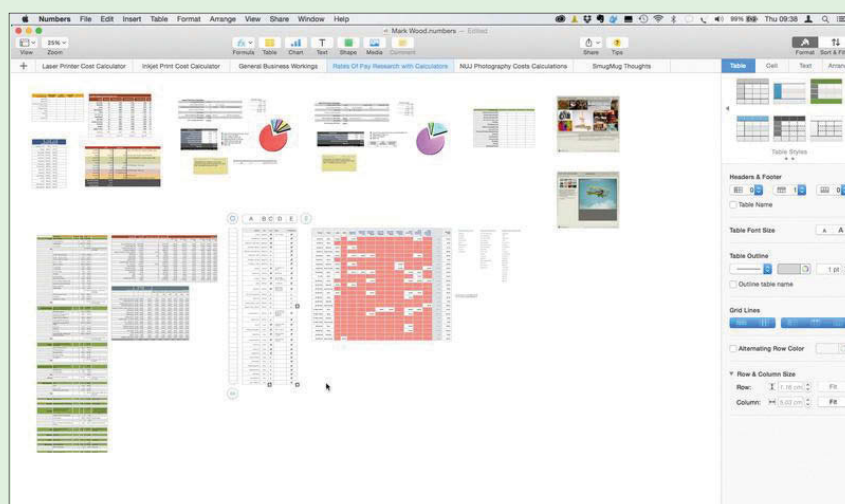
templates that suggest other pinboard topics, such as planning for a holiday.

To help navigate the pinboard, take note of the options beneath the Toolbar. On the left is a '+' symbol, followed by the names of the sheets in the current

document. Clicking the '+' symbol will add a new sheet, while hovering a cursor over the Sheet tab will reveal a menu symbol. Clicking this will open the Sheet menu, where you can rename, duplicate or delete a document.

2. Label charts and tables

Building on the first tip, it's a good idea to name sheets. To explore this, you could open a new spreadsheet from the Party Planner template.

In Numbers, choose *File* ➔ *New*. From the template chooser window, locate the Party Planner template and open it. The new document will have four sheets: Budget, Guest List, Vendors and To-Do List. The Budget sheet is the only one to contain multiple tables and charts – these have been named, Budget and Guests. The chart is called Budget Overview.

When first created, charts and tables inherit the default names Table 1, Table 2, or Chart 1, and so on. To add a new name, select one, then use the Format Inspector. This is context aware, so if, for example, you click a table, it will show the Table tab. Locate the table's name and make
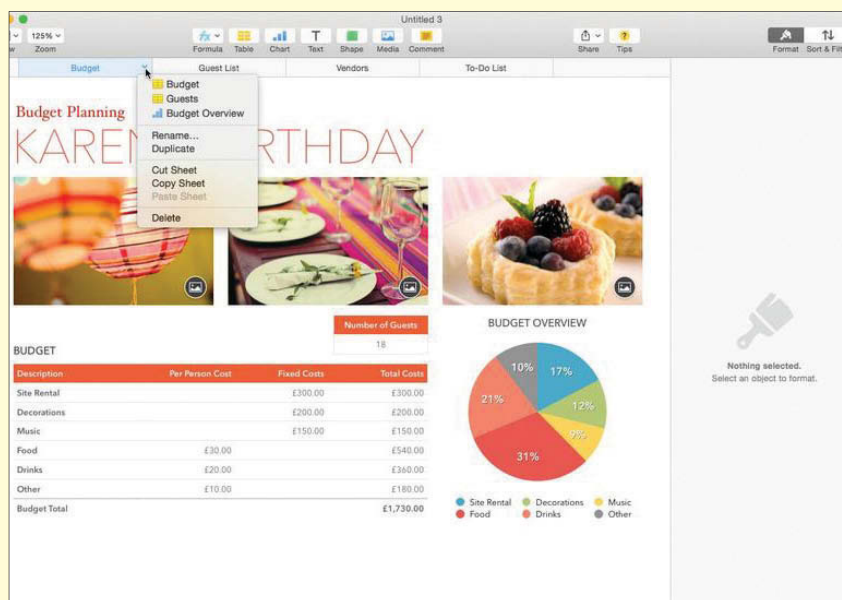
sure that the title is selected. The table will then display its title as a label. Double-clicking this will allow you to change the title.

When building advanced spreadsheet with multiple tables and charts having descriptive names for a sheet's contents is essential.

3. Break up calculations into separate tables

Way back in the soft focus mists at the dawn of the spreadsheet, users would often use a single spreadsheet to hold multiple calculations. It is, however, better to place multiple tables on either a single sheet or over several sheets to break up complex calculations and help organise your data.

Let's use the example of business planning. A business budget could have one table for, incomes, cash flow and expenditure. The income element of that table could be linked to a separate table that totals the total billable hours. The calculation could involve the billable hours for a team of people, each charged at different rates. Isolating the billable hours as a separate table makes troubleshooting and data analysis easier. The results from one table can be fed into other tables using Cell Referencing.

To reference a cell, regardless of the table it is in, click the cell where you want the referenced data to appear. Press the '=' symbol, which will open the Formula Editor. Next, click the cell

you wish to reference. To maximise the potential of this topic, you'll need to understand the difference between relative and absolute cell referencing, this is covered in a later slide.

4. Automatic data formats

Pages, Numbers and Keynote are all context aware. They try and work out what you're doing and try to assist. It's a bit like predictive text – often a help, but sometimes a hindrance.

The tables in each of Apple's iWork applications share an automatic Data Format feature. For example, when a '£' sign is typed into a cell, the program will see that you're adding currency values, and formats the numbers that follow a currency sign appropriately. If, however, you're trying to add a phone number to a cell, let's say with an area code beginning 01538, Numbers may automatically remove the zero. This is automatic formatting at work – if this is case, you'll need to set the Data Format manually. To change the Data Format, click the required cell, then in the Cell Inspector change the Data Format to Text.
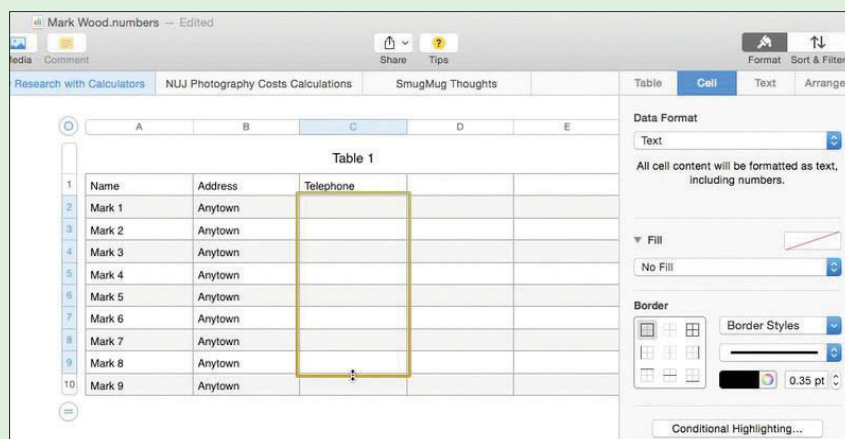
To apply a manually set Data Format across several cells, the format can be dragged. If you hover your cursor over a selected Cell, yellow circles will appear in the cell borders. These can be dragged to apply the format across other cells in a row or column.

Another use for this dragging is to automatically populate cells with data.

On a blank table, with at least seven columns, try typing Monday into the first column on the left. Clicking that cell and hovering your cursor over it will invoke the yellow circle on the right-hand edge of the cell. Drag that circle to the right and the columns will automatically fill with Tuesday, Wednesday, Thursday, and so on.

5. Design spreadsheets for use on an iPad

Although you can work with Numbers solely on your iPad or iPhone, the Mac version of the application contains more editing features. By starting a spreadsheet design on a Mac, you can add more functions and enjoy easier editing than via iOS. But, saving your spreadsheets to an iOS device makes portable data entry a breeze. The easiest way to do this is via your iCloud account. On your Mac, save the Numbers spreadsheet to iCloud, then open it on your iOS device.

When the spreadsheet is open on the iOS device assess it for legibility, text, and cell size. You'll need to be able to tap cells to edit them. If they are too small, you could enter a frustrating world of missed taps and incorrect selections.

Another design consideration for both Mac and iOS is keeping header rows and columns in view at all times, regardless of table size. To do you this, select the required table. The table
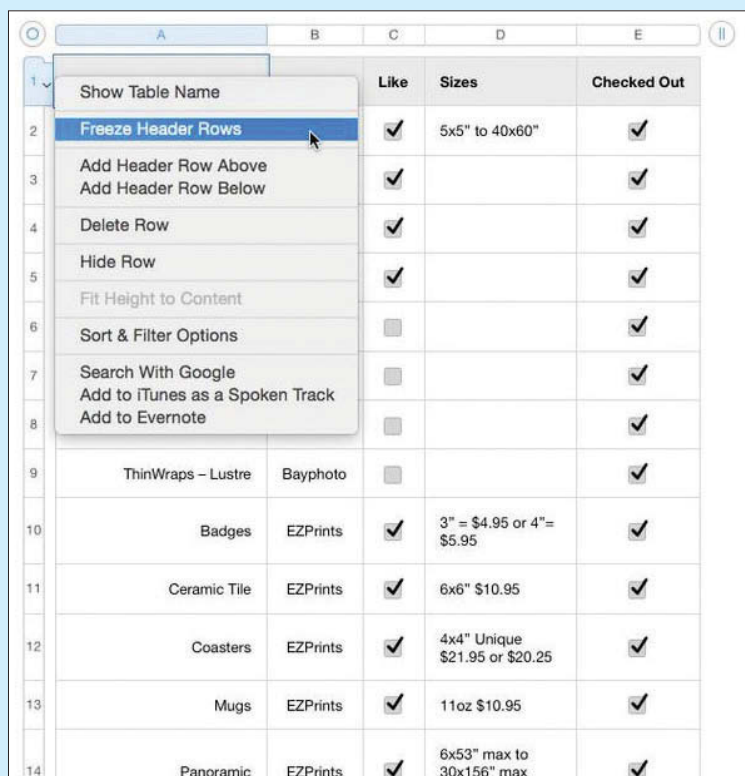
inspector needs to show there is at least one header for columns and rows. Next, click the reference header for the

rows, and choose Freeze Header Rows. Repeat this on the reference header for columns, and Freeze Header Columns.

6. Think of iOS spreadsheets as mini-apps

Having Numbers on OS X and iOS is more than a simple convenience. Moving beyond using Numbers for data entry on iPads, you can develop spreadsheets that behave like mini-apps. Okay there are lots of third-party apps, but if, for example, you need a custom calculator to generate a job quote, the process of developing one doesn't require any special coding knowledge. Numbers can be used to create easy to use and clear user interfaces. Deployment of the spreadsheet is easy too, and doesn't require developer licenses.

To make a Numbers spreadsheet behave more like an app, investigate the interactive data formats. To access these, click a cell in any table and look at the Interactive Data Formats found in the Cell Inspector. Checkboxes and Star Ratings are self-explanatory. Steppers and Sliders let you fix a range of values. If, for example, a Slider was meant to represent the hours of work on a project, it can be set to range from zero to one hundred. Creating pop-up
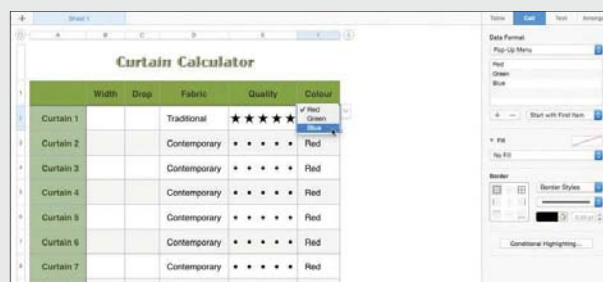
menus is also useful. Imagine a curtain maker who needs a reliable calculator to give onsite costings to a client; all on an iPhone. One pop-up menu could be created for fabric types, and another for the fabric colour. These pop-up values can be converted to number values using the Formula Editor.

7. Make the most of the formula editor

Clicking a cell and pressing the '=' key opens the Formula Editor. This will appear as a narrow single line, but can be stretched horizontally and vertically. Making the Formula Editor larger helps you input and analyse larger formulas. In this example an IF query has been used. The formula used was this:

```
=(
IF(F2= "Red", 10,
IF(F2= "Green",8,
IF(F2= "Blue",9,)))) 
```

The cell F2 is selected in the screenshot, rather than being labelled

F2 in the Formula Editor. The name is created from its headers – Colour and Curtain 1 – but the cell referenced is F2. In plain English, the formula reads if the cell F2 contains the word Red, then returns a value of 10. Referring to the curtain designer example, this could be used to turn a fabric colour into a money value say £10 per metre if red or £8 if green.

It would be a good idea to use pop-up menus for the colours, fabrics and so on, as mistyping red, green or

blue in this equation would return an error. When the Formula Editor is open, the inspector changes to a Function browser that list functions grouped in to disciplines such as Engineering and Statistical. The browser also gives examples of the functions in a variety of formulas to help explain their use.

8. Change cell references

By default, Numbers uses relative cell references. In the screenshot, the formula references the Curtain 1 Row and Colour Column. To populate Column A in the Totaliser table, a drag operation was used. This automatically filled Column A of the Totaliser with cell references from the Colour column of the Curtain Calculator.

However, the screenshot shows a drag operation taking place in Row 1 of

the Totaliser. This will cause an error because the formula will look at two columns to the right of the Colour column, which do not exist. To overcome this problem, the form of cell referencing can be changed. Click a cell with a formula in it, then click the cell again to open the Formula Editor. Any referenced cells will appear in lozenge-

shaped elements. Clicking one of these lozenges will open options for how cells are referenced.
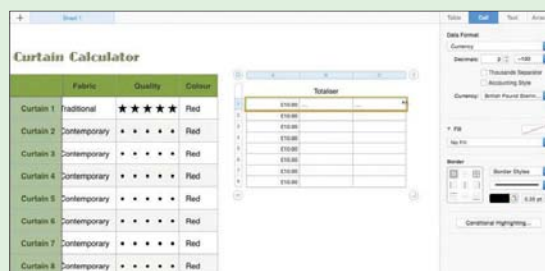
9. Use the Form option in iOS Numbers

In Tip 5, it was suggested that you could design spreadsheets to display appropriately on iOS devices. This would aid data entry on iPads or iPhones. Numbers for iOS does have a handy form option that bypasses the need to consider cell and table sizes on iPads. It helps to have named your tables beforehand using Forms.

You'll need to have at least one sheet that contains a table with a populated header row; for example, First Name, Surname, Address and Telephone. Towards the top left of the iOS screen is a '+' symbol. Tapping this will give you the option to either create a New Sheet or New Form. Choosing the latter will take you to a new screen where you will be asked to select the table to be used for the form, hence the suggestion to name your tables. The Form view makes adding or modifying

entries simple and clear. Interactive Data Formats are also accepted, so you are be able to use any pop-up menus, or sliders you created.

To learn more about Numbers for iOS, turn on the coaching tips. These are revealed by tapping the question mark in the top right of the iOS screen.

10. Protect your data

The information in spreadsheets will often need protecting. Perhaps it is commercially sensitive, or lists names and addresses so is subject to data protection. All this can make for a rather expansive topic, but from a Numbers standpoint, applying password protection is a good idea, and will demonstrate you exercise due diligence. The password protection process is the same for Pages and Keynote. In Numbers for OS X choose *File ➔ Set Password*, and enter a password in the required fields.

Adding a password hint is a good idea, but to strengthen your security do not let Keychain remember the password. This means you will need to

enter the password every time you open the spreadsheet, regardless of whether it is on your Mac or on an iOS device. Having to enter the password

ever time you open a spreadsheet may seem like a pain, but with devices like iPads, which get used in public spaces, it's a small price to pay.

Learn how to use Apple's presentation software – Keynote

Keynote is a presentation application that can be loaded with video, audio, and photos. And even when rammed full of media, it can be relied on to playback without a hitch.

1. Master Slides and Themes

Choosing *File ➙ New* in Keynote opens a theme chooser; a collection of templates that have distinctive design styles. Although you might want to start with a blank canvas there is no option to do so. Even the most basic themes are a collection of Master Slides for title and subtitles, title and bullets, which should be applied to slides as you build your collection. It's no accident that Themes have to be applied, because using Master Slides is the best way to enjoy a pain-free life using Keynote.

A typical business presentation might contain a Title and Subtitle slide, followed by Title and Bullet slides, with a few Photo slides mixed in. If you build your presentation using those master slides from the 'Improv' theme, then later you'll need to swap the theme to Artisan, or better still your custom theme by clicking the Change Theme button in the Document Inspector. This automatically swaps your presentation to the appropriate master slides in the new Theme.

To make your own theme, create a presentation from a theme that most closely matches the design you want. Then modify the fonts, colours and backgrounds on all the Master Slides in your presentation. You can even add a company logo to every slide master too. When the design is complete, choose *File ➙ Save Theme* and follow the onscreen instructions to save your design as a theme.

2. Using Outline Mode

When building a presentation, you can use one four options for viewing slides – Navigator, Slide Only, Light Table and Outline. Navigator is the default view and works well for most situations, but for sketching out ideas, and sequencing your thoughts try Outline view. It presents slides in a list and bullet form. To move to Outline view, click the View button in the Toolbar and pop-up menu will appear. Choose Outline.

To evaluate the usefulness of the outline view, try the following. In the outline pane, click next to the slide icon and type 'Point 1'. Press Return and a new slide will appear. Press the Tab key and the slide will indent, becoming a bullet on the slide 'Point 1'. To outdent the bullet press Shift-Tab. Type 'Point 2'.

Pressing Return will create a new line at the same indent level as the line above it. At the top level this means pressing Return creates new slides, and that Tab and Shift-Tab can be used to alter the hierarchy of any bullets. Bullets and Slides can be sequenced by dragging either their bullet or slide icon up or down the Outline pane.
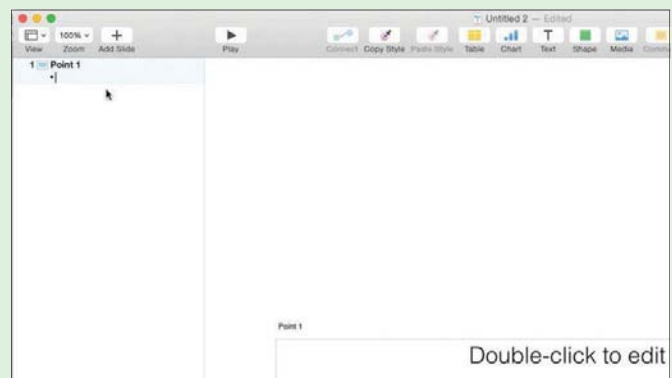
Once you've settled on a basic outline, you can apply a new Theme to your presentation and attend to the look and feel of your work.

3. Layer options for Master Slides

After recommending that using Master Slides is the way to go (Tip 1), you'll need to be aware of two concepts to fully utilise them. To experiment, create a new presentation. Choose *File ➔ New* and from the template chooser double-click any theme.

In the open presentation, click the View button in the Toolbar and select Edit Master Slides. When working on masters, a blue bar will appear at the bottom of the slide pane. You can modify the existing slide elements or add new ones.

The text and image boxes on Master Slides are formatted as placeholders. This means you'll need to replace their contents with your own words or pictures when working on standard slides. If, however, you want to add a logo to a master slide, it should not be a placeholder. Fortunately, by default
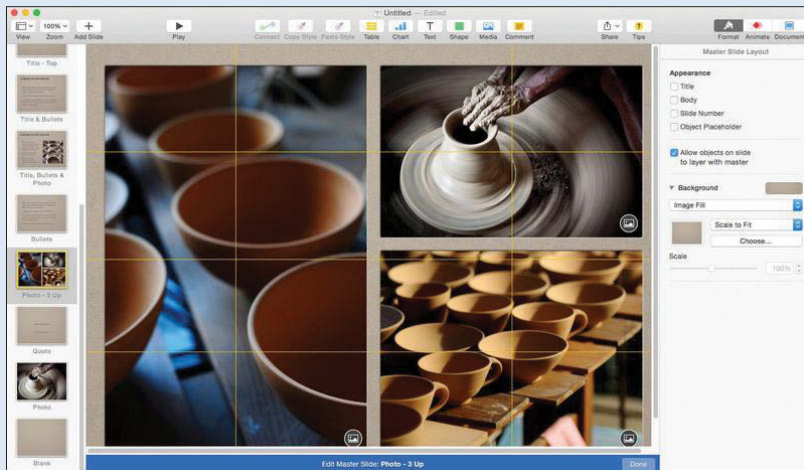
images placed in to Keynote are not placeholders. You'll probably want the logo to be the top most object in the layer order. This can be done using the Arrange tab of the Format inspector. That covers the first concept.

The second is to allow objects on slides to layer with master. If you add a photo to a slide and find that it sits on

top of a logo placed on the master, you won't be able to move the photo behind the logo using layer options unless you do the following. In the Edit Master Slides mode, click the required slide thumbnail. In the Format inspector, labelled Master Slide Layout, select the Allow objects on slides to layer with master.

4. Apply Transitions

Transitions are the animations that can be applied to slides. They can add drama, a sense of fun or set the pace for a presentation. For example, to make hard hitting points, you might choose Grid, while for a series of fine art images Dissolve would be better. To make a greater impact, change the transition timings from their default. It's a good idea to opt for faster transitions when designing a hard-hitting presentation, and for much slower ones for a contemplative piece on, for example, meditation.

Choose *Play ➔ Play Slideshow* to test out Transitions to make sure you'll hold your audience's attention. To change the Transitions on all your slides in one go, select all the slide thumbnails. In Navigator view, click on or near a thumbnail and press ⌘-A. With all the
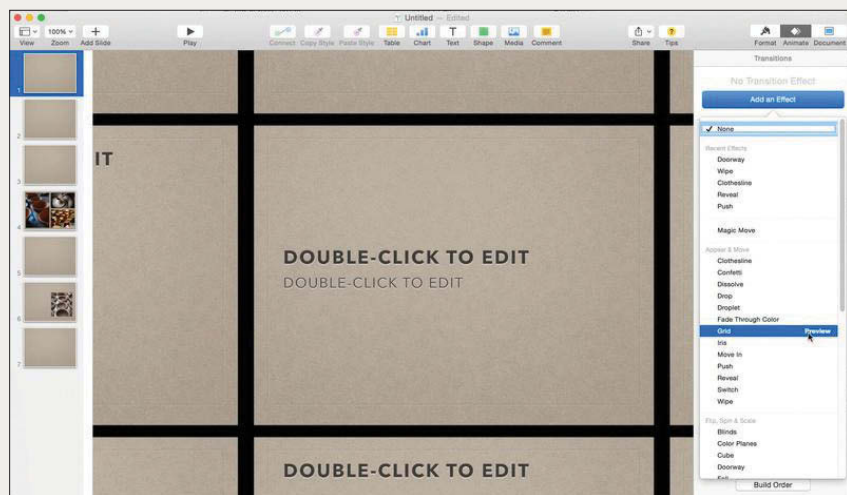
thumbnails selected, you can use the Animate inspector to change the type and timings of the selected slides.

One word of caution, though. If you're planning a presentation for playback via webinar software,

regardless of whether you're using Keynote or PowerPoint, animations do not stream well. We therefore recommend that you create a second version of your presentation, with the animations removed.

5. Turn control read on

Builds are animations that are applied to objects on slides. When an object is selected, the inspector will display three tabs: Build In, Animation and Build Out. Using builds is a great way to control presentations, in particular bullet points. If a slide is presented to an audience with all the bullet points revealed at the same time, the audience will read them all.

Setting a Build In for bullets is simple. Click to select the Text Box containing the bullets. In the Animate Inspector, choose the Build In tab and then pick the desired animation. To complete the build, in the Inspector change the Delivery to By Bullet. Now, when you preview the slide, the bullets will only appear when clicked.

Builds and animations can also be applied to text, graphics and photos.
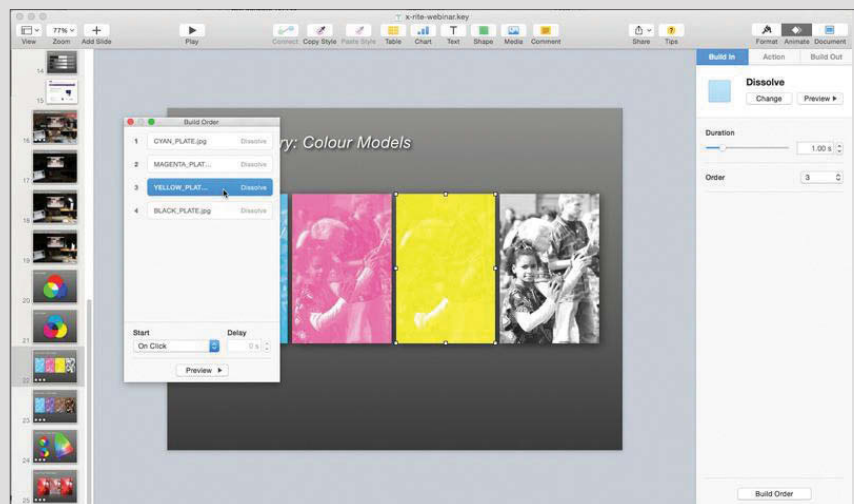
The order in which you apply the animations becomes the order in which they play. This order can be changed, except when it comes to bullet points. Click the Build Order button at the bottom of the Inspector. A floating window will appear. Dragging a build element up or down the window will change the build order.

The Build Order window can also be used to set builds to run automatically either with a preceding build or after it.

6. Connection lines for flow charts

Explaining processes using flow charts is often a great way to illustrate matters. Keynote comes loaded with all the shape objects you'll need to create bubbles, squares, and so on. Clicking the Shape icon in the toolbar will open a pop-up containing all the shapes. Clicking one will place it on a slide.

Double-clicking a shape allows you to add text directly inside the object. Then the usual formatting options can be applied to modify the shape as required. So far much of this process is pretty intuitive, but resist the temptation to use the line options found when clicking the Shape icon to connect the elements of your chart. It is better to use Connection Lines.

Control-click the Toolbar in Keynote. A pop-up menu will appear, choose Customize Toolbar. You'll be presented with a vast set of icons. Locate the
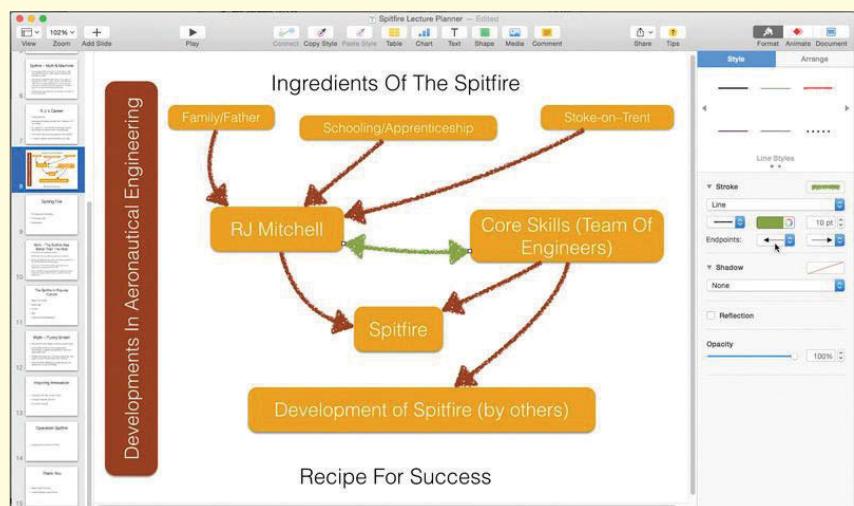
Connect icon and drag it to a space on the Toolbar. Next, click Done to close the Customize Toolbar options. To apply a connection line, you'll need to select two Shape objects on a slide. To follow along, add a couple of Shapes to a slide and then select them. After this, click the Connect icon in the Toolbar.

The Shapes will now be connected, so select just one of the shapes and drag it round the screen. You'll see that the connection line remains connected.

Like shapes, connection lines can be formatted to change their colour and weight, and you can even add arrow heads and animations.

7. Push presentations to iCloud

You can develop a presentation exclusively on OS X, iOS, or on the iCloud web browser version. As we mentioned in the introduction, the desktop version is the most capable and feature rich version of the application. None of OS X features are lost when a presentation is saved to iCloud Drive, but the ability to edit via the browser or iOS versions will have a few limitations. With that said, if you were building a presentation on topics that required a site visit, for example, production line improvements in a factory, or a school report on a castle, you may want to add photos taken on your iPhone.

Ahead of a business trip, for example, you might want to create a draft presentation containing image place holders and save it to iCloud Drive. Open the presentation on your iOS Device and go to the image placeholders and tap the '+' symbol in
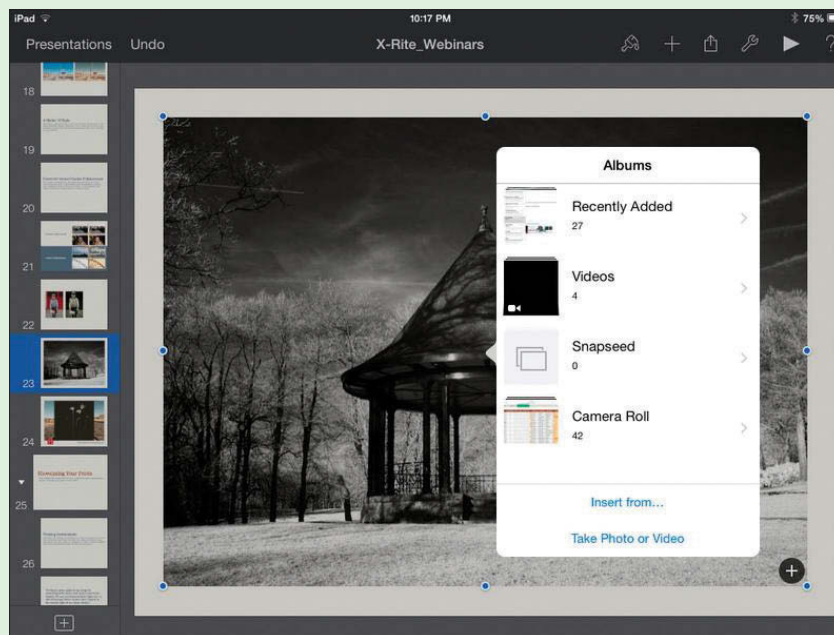
the bottom right of the placeholder. This will open a new screen with links to your Photos library. At the bottom of the screen you'll see a Take Photo or Video button. Tapping this for the first

time may invoke a request for Keynote to access your photos. Accepting this let's you take images from inside Keynote, and automatically add them to the placeholders in Keynote.

8. Using rehearsal mode

Keynote's rehearsal tools help you to work out the overall timing of your presentation. Rehearsing might highlight parts of the script that don't work when read aloud. Also, slides containing large media files, such as video, may take a couple of seconds to load. If you're not aware of this, come the big day, you might be unnerved when you click or tap to play a video and nothing happens in the instant you expected, so you click again and advance to the next slide.

In rehearsal mode a coloured bar will appear across the top of the screen. This displays as a hatched amber line, while a slide or media is loading, and turns green when Keynote is ready to advance. The coloured bar, or Ready to Advance Indicator, appears on the presenter display, too. Slideshows can be delivered on dual displays – one
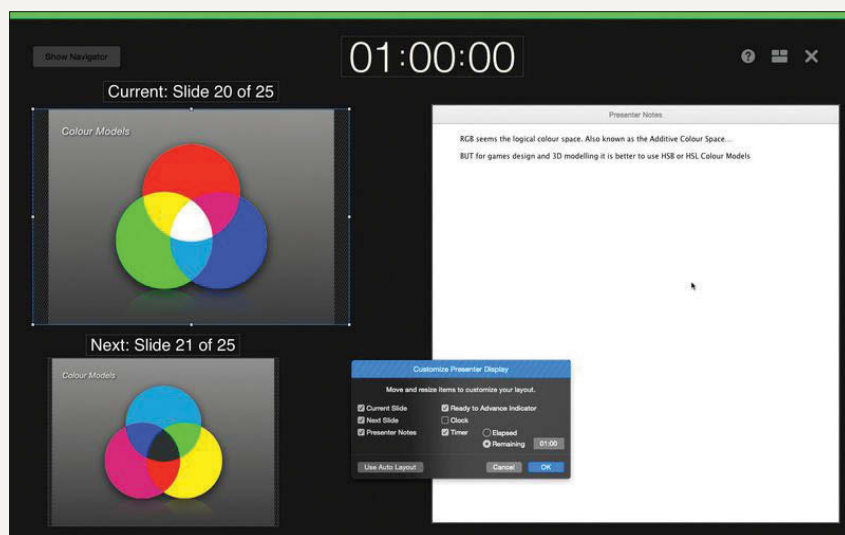
being a presenter display and the other the slides for the audience. In Keynote, choose Play ➜ Customize Presenter Display. A window will appear that lets you use checkboxes to enable the features you require. Note that the

timer options can be set to show time remaining, an ideal option when working to a fixed schedule. You can also drag and scale presenter elements such as Current Slide and Next Slide to suit your needs.

9. Remote control

When you want to play a presentation from a Mac, but don't want to stand over the computer to click through the slides, you can use the Keynote app for iOS as a remote control. To do this, you'll need Keynote installed and open on your Mac, and an iOS device such as an iPhone. Furthermore, both devices have to be on the same Wi-Fi network, this could be computer-to-computer. If both devices are on the same network you're all set to follow the next steps.

On Keynote for your iOS device, tap the iPhone-shaped icon at the upper left of the screen to open the remote options. On the Welcome to Keynote Remote popover, tap Continue. The iOS device will search for the Mac running Keynote.

On your Mac, choose *Keynote* ➔ *Preferences*. Click the Remotes tab. If both devices are on the same network, the Remotes preferences will show your
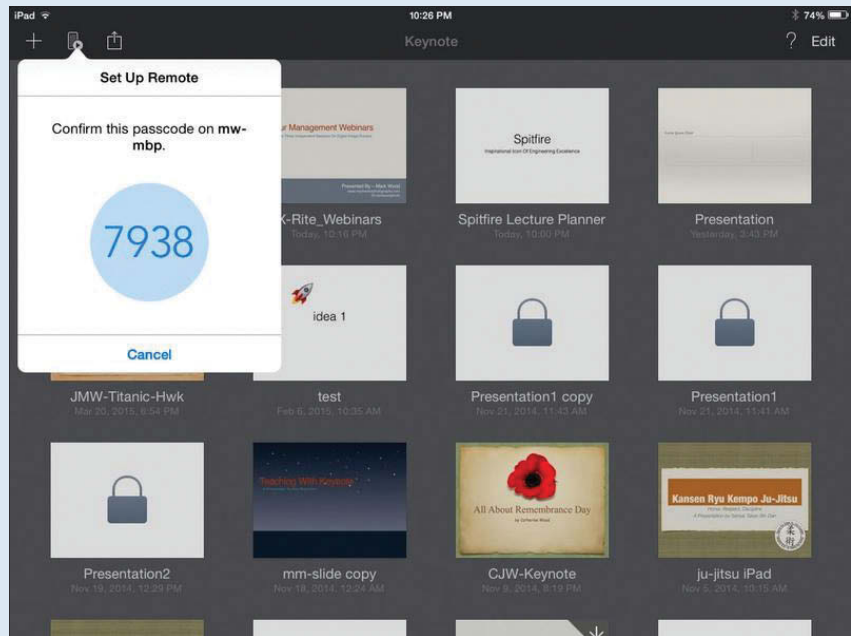
iOS device. Click Enable and then Link. The iOS device will display a passcode that also appears on your Mac. On your Mac, click to confirm you want to link

devices. Once linked Keynote for iOS will display a large Play button. Tap this and you'll be controlling your presentation remotely.

10. Skip slides bin

As deadlines loom, you may find your presentation doesn't fit the allocated time. There is no need to delete slides to trim your Keynote. It is better to skip slides, and perhaps speed up a few transitions, rather than start to delete parts of your work. This suggestion can be expanded to trying to work with only one Keynote presentation per topic. For example, a marketing presentation might be designed to run for 10 minutes, but it might also need to fit to an occasional five-minute slot. Skipping slides makes an efficient workflow because come the day, slides may need updating with new product shots or a new company logo. Then only one Keynote presentation needs to be updated rather than several.

In Navigator view, select the slides you want to skip. Control-click any of

the selected slides. From the shortcut menu, choose Skip Slide. Skipped slides will appear as thin bars in the Navigator. To switch off skipping, Control-click a skipped slide and from the shortcut menu, choose Don't Skip

Slide. Slides can also be skipped in Outline and Light Table view. In Light Table view skipped slides will appear greyed out, unless the Hide skipped slides box is selected; found in the bottom left of the document window.

Learn how to use Apple's word-processing program – Pages

Ten tips to help you make the most of Pages for OS X, some of which can be applied to the iOS and iCloud apps, too.

1. Use object Markers, Headers and Footers in Pages

You may already be using headers and footers in Pages, but need to know how to add a graphic every page a document, this tip will show you how.

Move your cursor to the top or bottom of a Pages document, and you'll see a series of three outlined boxes. These are either the header or footer, and can be used to for automatic page numbering, chapter names, and so on. Take a look under the Insert menu to see some of the auto-options available. By default, headers and footers appear on every page of a document.

As their names suggest, headers and footers appear at the top and bottom of a page, but what about something in the middle? Select *Insert ➤ Choose in Pages* and you'll be able to add a graphic or photo to a page. To make a graphic automatically appear on every page, select it and choose *Arrange ➤ Section Masters ➤ Move Objects to Section Master*. The object
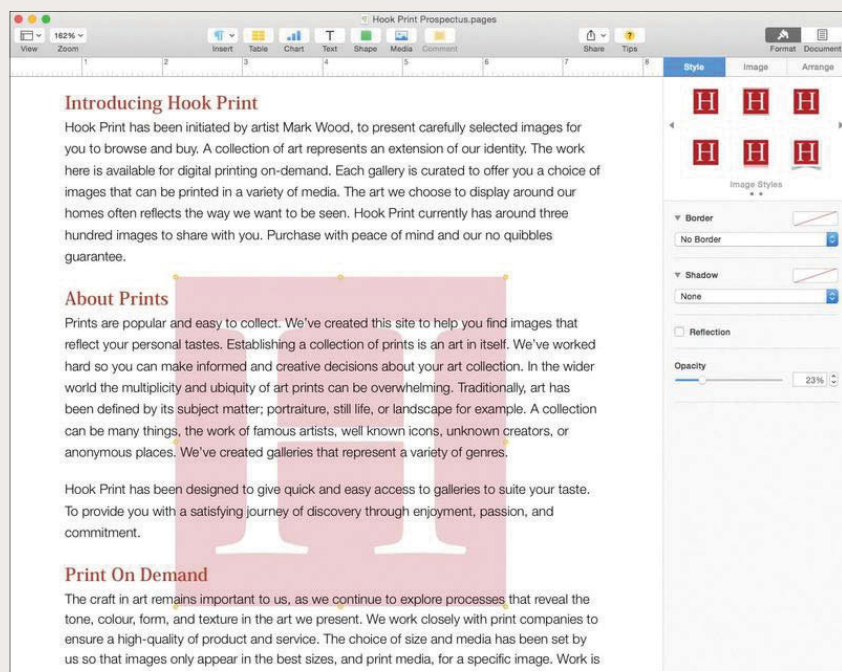
will automatically move to the background. Choose *Arrange ➤ Section Masters* to check whether Make Master Objects Selectable is enabled, so that you can select and modify your object.

Use the Style tab of the inspector to change an object's opacity.

By default, a Pages document has a single section, so the object will appear on every page.

2. When to use Page Layout mode

Pages is an application with two modes, Word Processing and Page Layout. It might seem a good idea to use Page Layout mode for brochure or newsletter design. Don't. It's great for posters or designing business cards, but for long documents where text needs flow across several pages stick with Word Processing mode.

The key benefit of Page Layout mode is that it allows objects to be layered freely, letting you use Pages as a simple, effective, tool for creating

graphics. Shapes can be combined, and reshaped using vector controls.

Page Layout can be used for multipage designs, where the running order of pages can be swapped by dragging page thumbnails, though the 5.5 version of the Pages offers no way to flow type between separate text boxes. When you've finished, Pages provides you with several ways to share your work, including as a PDF.

These can be created in two ways. Your first option is to choose *File ➤ Export to ➤ PDF*, but for greater control over PDF layout choose *File ➤ Print*. In

the print window set the required layout settings, then use the PDF pop-up menu in the bottom left of the window to select a PDF type.

3. Use Style Sheets

This tip not only applies to Pages, Numbers and Keynote; it is sound advice for almost every application that uses text formatting. If your Pages content is being passed on to designers, for inclusion in a page layout program or to be used in a web page, applying style sheets is essential.
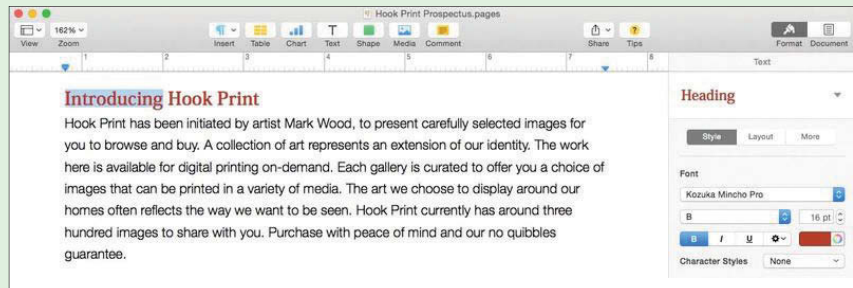
4. Futureproof documents

There's never a good time to find that you can't open a Pages 08 document without opening it in Pages 09 first. To avoid this problem, we recommend you make a Microsoft Word backup. You won't need Word to try this tip.

Pages documents are easily exported to Word format, and Pages can open Word documents. Mad as it may seem saving a copy of your Pages work to Word all but futureproofs it. With a Pages document open, choose *File ➔ Export to ➔ Word*. In the dialog box that appears, open the Advanced options and select .doc rather than .docx to maximise the file's compatibility. Click Next to save the Word document. Some layout settings will be lost in translation, but your words and pictures will be saved.

The Word .doc format is ubiquitous, with several free applications that open them. To avoid using Word .doc files you could make a Rich Text Format (RTF) version of your Pages work too, but placed graphics and photos are lost so should only be used for text only manuscripts.

5. Use Pages Bullets and Lists to outline reports

Use Bullets & Lists for those occasions when you have a head full of ideas and need a way to get them down quickly.

On a blank document, type Concept 1, then press Return, type Concept 2 then press Return, and repeat this until you've listed five or six concepts. Select all of this text and in the Text inspector locate Bullets & List and apply Numbers as the bullet option. The list of concepts will be labelled '1. Concept 1, 2. Concept 2' and so on. Click the number 5 created by applying the bullet. You should be able to drag this bullet up and down to change the list order.

Once you are comfortable with this, you can try creating hierarchies using Tiered Numbers. This can be used to indent bullets, which can be listed as 1, 1.1, 1.2. 1.3, 2, 2.1, 2.2, and so on. The further you push this concept, the greater the need to use Bullet & List styles, because as you drag bullets to change their hierarchy their layout formatting falls apart. This problem can be corrected by apply Bullet & List styles.

One final point, if you're providing text for use in a layout or web page application, you may need to switch off the bullet formatting and number your lists manually. Regardless of the word-processing application used, auto-numbered bullets don't always translate when passed to other applications.
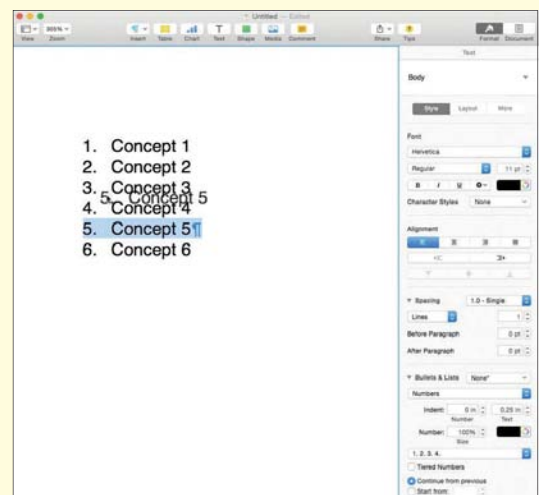
6. Pasting graphics from web pages

Using *Insert → Choose* is one way to locate and import previously saved graphics in to Pages. In addition, any photos in your current Photos library can be dragged from the Media Browser on to a document. However, both these processes require that images are already saved and stored appropriately. There is a quicker way to copy an image from a web page or other open application and paste it directly into Pages.

To try this copy and paste method have a Pages document open, this method also works for Numbers and Keynote. You'll also need to open a web page or any document from which you wish to copy an image. With the target image visible, press ⌘-Shift-4. Your cursor becomes a crosshair. Hold down the Alt key and drag a selection that covers the chosen image. The selected area will be copied to your clipboard.

Switch applications back to Pages and press ⌘-V to paste the contents of your clipboard into Pages. This method is a great timesaver when working exclusively in Pages, Numbers, or Keynote. However, if you need to

pass on your work to page layout or web page apps, you'll need to present any placed images as separate files.
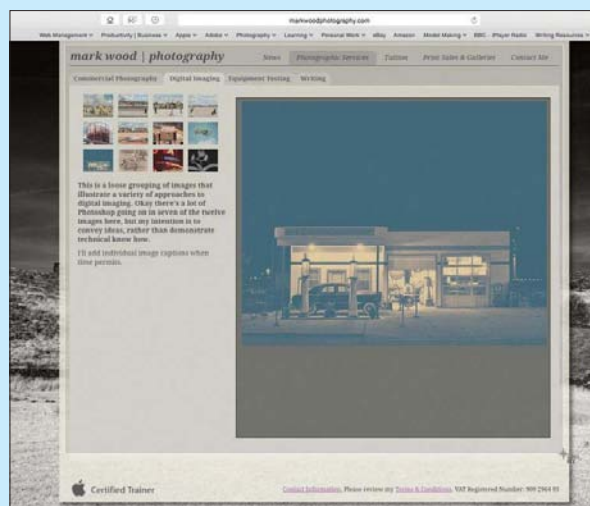
7. Pasting text from a web page without formatting

There are times when the path of least resistance means copying text from a web page, PDF, or other document. When it's a business mission statement, or a quote from your CEO, all you need to do is select the required text and press ⌘-C. With the text on your clipboard, it's ready to paste into Pages, Numbers or Keynote.

If you press ⌘-V in Pages any text on the clipboard will paste retaining the type attributes applied in the originating application, including any inline graphics and hyperlinks. This can be ideal; instant formatting. This doesn't mean the structural hierarchy of styles sheet tags carry over; they don't. The text may look stylised, but it's purely visual.

There is a second paste option. With text on your clipboard, in Pages, press ⌘-Alt-Shift-V. The pasted text adopts the current paragraph style set in the Pages document. If several paragraphs are pasted in to a heading style such as Title, the first paragraph will adopt the Title style and following paragraphs
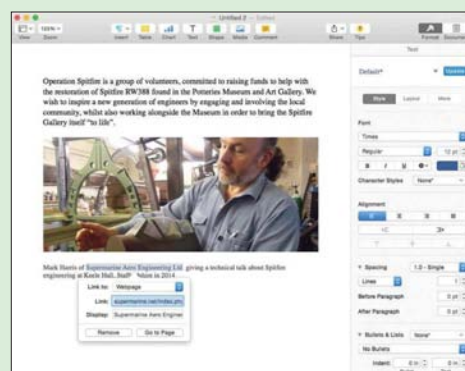
will become Body style (when the default 'Following Paragraph Style' is set in Pages).

8. Watch your text wrap options

Objects that are pasted or placed into Pages have a text wrap and placement options set automatically.

To verify Object Placement and Text Wrap options, select an object in Pages, typically this would be a photograph. In the Arrange tab of the Format Inspector, you'll often want to leave the default Move with Text object placement, on. This option tries to keep the object in a position relative to place in the text where you placed it. Note the word 'try'; as text is added either before or after the object it will remove in a relative fashion. To lock the object relative to the text choose the Inline with Text, Text Wrap option. This is ideal when working on a manuscript rather than creating page designs. .

If you want to experiment with page design, you'll want greater control over text wraps. First, complete your writing and object placement, then change the Text Wrap options to something other than Inline with Text. Previously
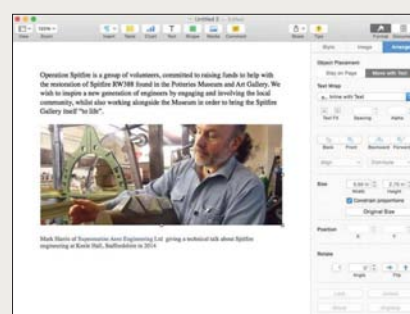
greyed out options in the inspector will become active, so you can exercise your graphic design skills.

9. Enable vertical ruler when designing pages

Pressing ⌘-R reveals or hides the ruler in Pages. By default, that's a single horizontal ruler in word processing mode and a horizontal and vertical ruler in page layout. In Tip 2, it was suggested that you should design newsletters and brochures in word processing mode. In fact all the templates in Pages for newsletters are in word processing mode. Having a vertical ruler helps in design layout, to enable it in Pages requires a visit to the application's preferences.

Choose *Pages → Preferences* and in the Rulers tab select Enable vertical ruler for documents with body text. It's also the place to set the Ruler Units, the choices are Points, Centimetres or Inches.
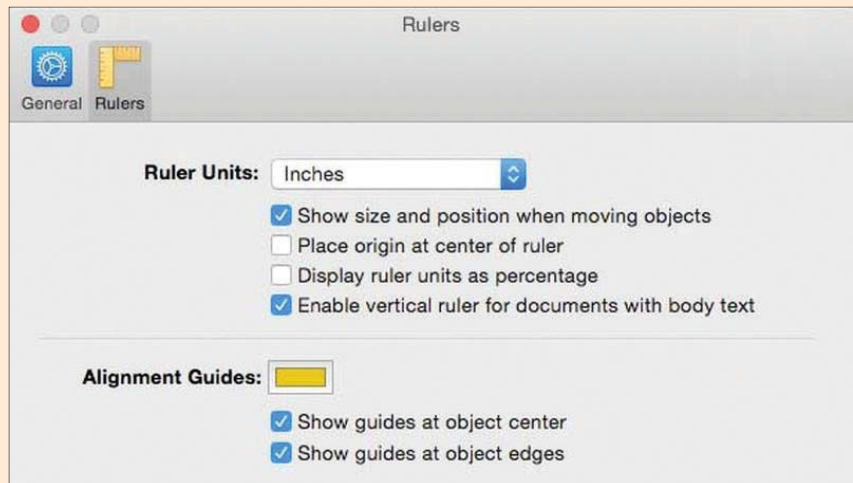
Another default setting is Alignment Guides. These help you align objects in both page layout and word processing modes, unless an object has its Text Wrap set to Inline with Text. When ruler guides are placed and Alignment Guides are enabled, objects will snap to the guides, or align to the centre or edges of objects. This feature can occasionally be a hindrance. Holding down the '⌘' key while dragging objects temporarily disables snapping.

10. Reduce file size

Pages, Numbers and Keynote link to deep system frameworks and technologies, which means you can cram them with photos, audio and video, and neither the documents or the applications will slow down. As an end user, the only appreciable downside is the bloating of file size.

If you find your documents are eating up storage space, you can choose *File → Advance → Reduce File Size*, though before you do this that note that the Reduce File Size command will down-sample any large media files.

For example, if an A3-sized photo is placed in Pages and scaled to A6, then the resolution required to output the photo at A3 will be retained unless Reduce File Size is used. If you use reduce file size, then later you decide to enlarge the A6-sized photo back to
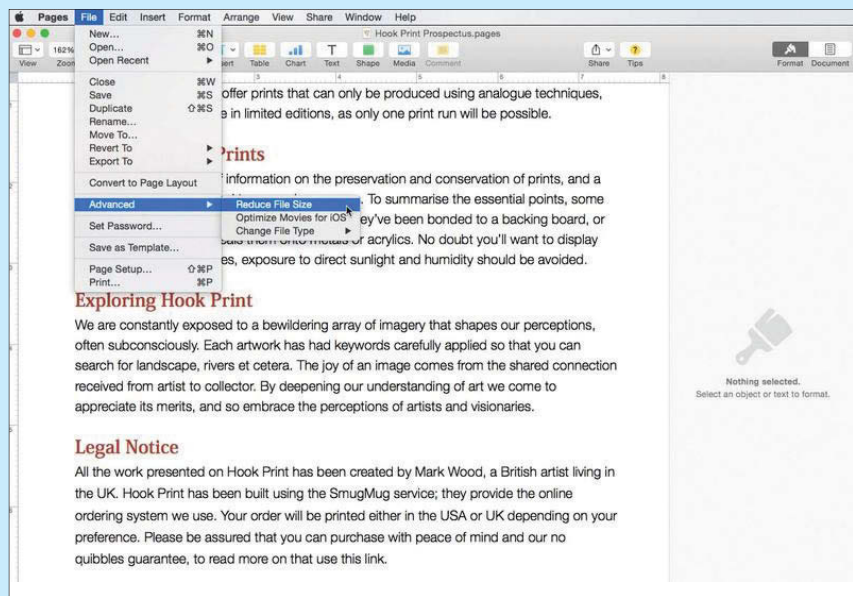
its original A3 size, the resolution required would be lost. Reduce file size is best reserved for documents you wish to share perhaps via email, and then only on a copy of the original Pages document.

Move from PC to Mac

WINDOWS 10 IS COMING HARD ON THE HEELS OF THE FAILURE OF WINDOWS 8, OFFERING FURTHER REASONS FOR WINDOWS PC AND LAPTOP USERS TO LOOK TO MOVE TO A MAC. HERE WE ANSWER THE TOP 10 QUESTIONS OF WINDOWS USERS MOVING TO MAC BY MARTYN CASSERLY

With Windows 8 hardly setting the world on fire, and Windows 10 just an iterative version of its predecessor Franken-system, Microsoft can expect customers to opt instead for the Apple Mac with its user friendly OS X platform. Here we answer the top 10 questions that new switchers ask about how to use Apple's powerful OS.

There are many reasons to switch to a Mac: beautiful hardware, seamless compatibility with your iPhone or iPad, and the incredibly powerful OS X – now in the process of migrating from Yosemite to El Capitan). Apple computers do things a little differently than those running Windows though, so here we answer 10 of the most common questions we're asked by new users exploring OS X for the first time.

1. Right-click on a Mac

Due to the absence of buttons on Apple's mouse and trackpad one of the most frequently asked questions by PC users is how to right-click on a Mac. There are a few different ways to accomplish this. You can hold down the Ctrl key while you click, though this seems a little clumsy. Instead, go to *System Preferences ➜ Trackpad* and enable Secondary Click. Now you can tap two fingers and the right-click menu will appear. If you have a Magic Mouse then go to *System Preferences ➜ Mouse* and enable Secondary Click, which changes the right side of the mouse button to a right-click.

There are many reasons to switch to a Mac: beautiful hardware, seamless compatibility with your iPhone or iPad, and the powerful OS X

2. Open PC files on a Mac

Many of the files you have on your PC can easily be opened on a Mac. Common media standards such as JPEG, MP3, MOV and AVI all have compatible apps that automatically open the file when you double-click it. If you've received the file through email, then you can use the Quick Look option – just click on the file and press the Spacebar to view it. There are a couple of notable exceptions to the compatibility rule: WMV or the EXE format, which cannot be opened on a Mac as it's a Windows-only executable program. You don't want to install a Windows executable on your Mac, and you can't.

3. Shut down, sleep and log out

Shutting down a PC has always been a straightforward matter of using the Start menu, that was, of course, until Windows 8 came along and caused confusion with the Charms bar. It is marginally easier on a Windows 10 PC, but on a Mac the process is very easy. First, click on the Apple icon in the top-left corner of the screen. Then from the drop-down menu, you can choose to either put your Mac in sleep mode, restart or power down completely. If you just want to log out of your user account, then the option is also found at the bottom of the menu.

4. Find a program that you want to open

Like Search on Windows, the Mac has its own feature called Spotlight, which will quickly locate any applications or files you might need. To access it, you can either click on the magnifying glass icon

5.

PC users. The traffic light buttons in the top left of the pane look similar to Windows, but they behave differently.

Clicking the red cross will close the current window, but not the app itself. The quickest way to achieve this is ⌘-Q. The yellow minus minimises the app exactly as Windows does, though the green plus button doesn't maximise the pane. Instead, it's enlarged to fill the whole screen.

7. How to Ctrl-Alt-Delete

OS X is a very stable system but from time to time an application may stop responding, requiring you to manually shut it down. The Mac doesn't have a delete key, meaning the time honoured Ctrl-Alt-Delete combination won't work, so use instead ⌘-Alt-Esc to bring up the Force Quit window. Now select the problematic application from the list – which will often have a message next to it – and click the blue Force Quit button. This menu can also be accessed by clicking on the Apple icon in the top left corner, then selecting Force Quit from the drop-down menu.

8. Find the control panel

When you need to check various system or hardware details on a PC the first port of call is the Control Panel. You won't find this on a Mac, but in its place is System Preferences.

To access this click on the three-silver-gears icon in the dock or click on the Apple icon in the top-left corner and then select it from the menu. Once inside, you are

presented with a pane displaying the various areas of the system. Simply click on the one you want to adjust and the options will appear.

9. Set up multiple user accounts

If more than one person is regularly using your new Mac, then you might want to create different user accounts, just as you would on a PC. Setting them up is easy. Navigate to *System Preferences ➜ Users and Groups*, and click on the padlock in the bottom-left corner. You'll be prompted for your administrator password. Enter this, then click on the plus sign above the padlock to enter a new user account. When you've finished, click the padlock once again to complete the process. To switch users either log out from the Apple icon, or click on the user name displayed in the top-right corner and select another account.

10. Move between open windows in the same program

Navigating between applications on OS X is a similar method to that in Windows. Whereas on a PC you would use Alt-Tab, on a Mac you press ⌘-Tab (holding ⌘ down longer if you want to see a menu of open applications). To move between windows of the same application you need to use a separate key combination, that of ⌘- (the key to the left of Z). Our favourite way to switch quickly (as long as you've enabled the Trackpad gestures) is to swipe down with three fingers and click on the window you want to use.

in the top-right corner of the screen or press ⌘-Space, then type the name of your program into the blue search bar that appears. Alternatively, going to the dock and clicking on Launchpad – a silver circle with a spaceship inside – will bring up icons for your installed applications. If you prefer a Windows Explorer style search, then click on the icon that looks like two blue faces to launch Finder.

5. Uninstall a program

If you're used to using the add/remove programs feature on a PC, then uninstalling an app on OS X will seem a little strange. In most cases, it is a simple case of finding the application (see Tip 4, above) and then moving it to the trash. Remember though, that an icon from the dock is only a shortcut, so dragging that to the trash will have no effect on the actual app. In some cases, especially if the app required the administrator's password to be installed, you may need to dig a little deeper to remove every last file.

6. Close, maximise, minimise

The way windows function on OS X can be a little bewildering at first for long-time

8.

Terminal tips and tricks

WE COVER SOME OF THE BEST USES FOR THE OS X COMMAND LINE TOOL
BY KENNY HEMPHILL

When launched, Terminal provides a line interface that you can use to control parts of the OS X interface – in essence, it gives you access to the UNIX features that lie beyond the OS X skin. Here we'll be looking at some projects you can try out in Terminal.

1. Alter file permissions

File permissions control which users can access and modify files and folders on your Mac. For the most part they work very well, but occasionally things go awry, like when you copy a file from one user account to another and discover you can't open in it in your account.

There are two commands we can use to change permissions; chmod, which modifies permissions for all users except the file's owner, and chown which assigns ownership to a specific user.

So, to change permissions on a file to allow anyone to access, read, and modify the file, we'd use:

```
sudo chmod 777 path-to-file
```

Where path-to-file is the path of the file whose permissions you want to modify. Remember, rather than type the file path, you can drag the file on to the Terminal window. To modify the permissions to allow access and reading, but prohibit changing the file, swap 777 for 644.

If you want to change permissions on all the files in a folder, drag the folder onto the Terminal window instead of a file, and type -R after the command name.

To change ownership of a file to your account, use:

```
sudo chown your-short-user-
name path-to-file
```


3.
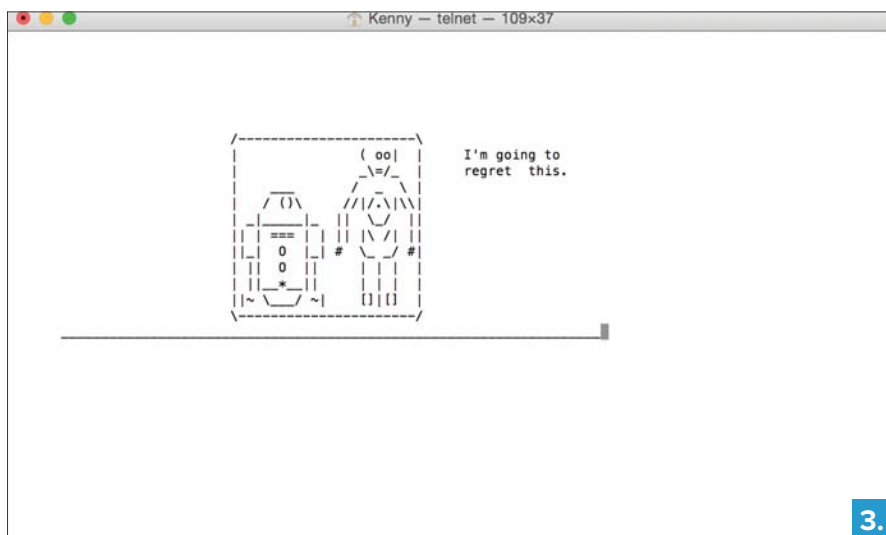
2. Change the default for screenshots

By default, screenshots in OS X are saved as .png files. That's usually fine, but you can change it if you need to. For example, to change the default to JPEG, type:

```
defaults write com.apple.
screencapture type JPG
```

You can also change to PDF or TIFF using the same command and swapping your chosen format for JPEG. To change the default name for screenshots, use:

```
defaults write com.apple.
screencapture name "the-name-
you've-chosen"; killall
SystemUIServer
```

Replace the-name-you've-chosen with whatever you like and screenshots will now be given that name followed by the date and time.

3. Watch an ASCII version of *Star Wars* on the Mac

This one's just for fun, but what fun. There's an ASCII version of *Star Wars*

running on a Telnet server in the Netherlands. To watch it, use:

```
telnet towel.blinkenlights.nl
```

To stop it, type Ctrl-] and then 'quit'.

4. Enable text selection in Quick Look

Quick Look is an incredibly useful tool for quickly examining the contents of a file. And while it's primarily intended for images, it can also be used to read text documents. Sadly, reading is as far as it goes. You can't select text to copy it, for example. At least, not without the help of a Terminal command. Type this to allow you to select text in Quick Look:

```
defaults write com.apple.
finder QLEnableTextSelection
-bool TRUE; killall Finder
```

5. Disable Auto-restore in Preview

Do you ever open Preview and find that it spews open document windows all over your screen? That's the fault of Auto-restore, a feature in OS X since Lion,

which saves the state Preview is in when you quit it and then reverts to that state when you open it again. So, unless you close all open documents before quitting, they'll reopen next time you launch Preview. To prevent that, and launch Preview without any documents, use this Terminal command:

```
defaults write com.apple.
Preview
NSQuitAlwaysKeepsWindows -bool
FALSE
```

To change back to the default, retype the command, replacing FALSE with TRUE. To do the same thing in QuickTime X, replace com.apple.Preview with com.apple.QuickTimePlayerX.

6. Make the Dock slide more quickly

If you use Show and Hide Dock, you'll notice that when you drag the mouse pointer onto the bottom of the screen, or whichever edge you keep the Dock, there's a delay before the Dock slides into view. You can eliminate that delay with these commands:

```
defaults write com.apple.dock
autohide-delay -float 0
```

```
killall Dock
```

The '0' represents the delay before the Dock slides into view, so if you want to reduce it, but not eliminate it altogether, replace the '0' with another value, measured in seconds.
To revert to the default, type:
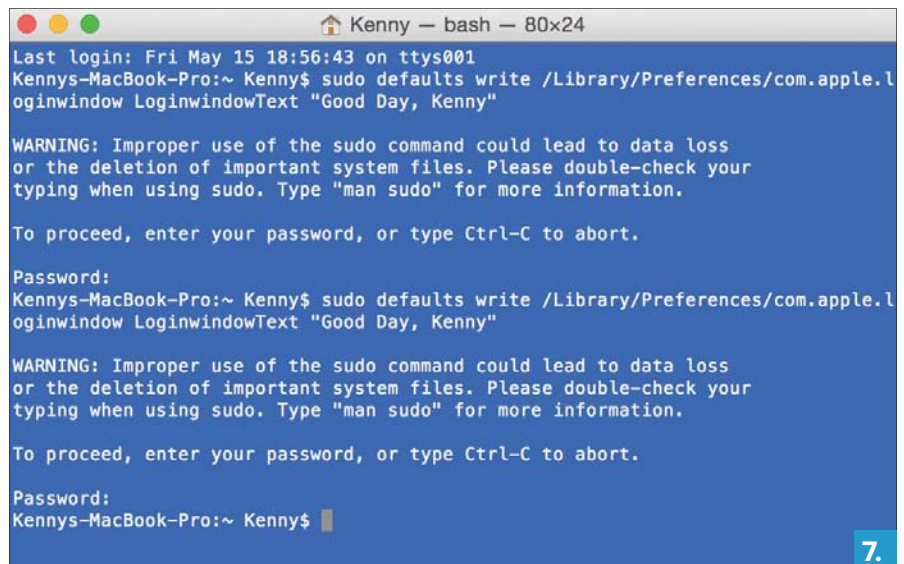
```
defaults delete com.apple.dock
autohide-delay
```

```
killall Dock
```

You can also change the speed at which the Dock slides. Again, it's done by modifying a delay. To make it instant, type:

```
defaults write com.apple.
dock autohide-time-modifier
-float 0
killall Dock
```


7.

To double the speed, replace the '0' with '0.5'. To keep it the way it was, use '1.'

7. Add a message to the log-in window

Whether it's to prank other users, provide daily affirmations or inspiration to yourself, or for any other reason, there may be occasions when you want to put a message in the login window in OS X. With the help of Terminal, it's very simple. Type:

```
$ sudo defaults write /
Library/Preferences/com.apple.
loginwindow LoginwindowText
"Your message here"
```

The next time you log out or restart, the message will appear in the log in window. To remove it, use:

```
$ sudo defaults delete /
Library/Preferences/com.apple.
loginwindow
```

8. Make your Mac speak

You can make your Mac say anything you want in the currently selected voice. To do that, use the 'Say' command, like this:

```
Say "whatever you want your
Mac to say"
```

As soon as you hit Return, your Mac will speak the words you typed.

9. Get rid of Dashboard

Let's face it, who uses Dashboard anymore? For most of us, the only clue to its continued existence is its appearance in Mission Control. If you'd like it gone completely, use this command:

```
defaults write com.apple.
dashboard mcx-disabled
-boolean TRUE
```

```
killall Dock
```

To bring it back, use the same command, but replace TRUE with FALSE.

10. Rebuild Spotlight

Spotlight is OS X's search tool and one which is incredibly useful. Occasionally, however, it can become corrupt or stop working properly. The solution is to rebuild it. Guess what? Yes, there's a Terminal command for that, too. Use:

```
sudo mdutil -E /Volumes/
DriveName
```

Where 'DriveName' is the name of the volume whose index you want to rebuild. In most cases, this will be your startup volume, and unless you've changed it, it will be called 'Macintosh HD.'
Alternatively, if you have volumes mounted on your Mac's Desktop, you can drag the one you want on to the Terminal window, and ignore '/Volumes/DriveName.'

Reviews

Apple Music

Apple Music is the new iTunes-based music streaming service that arrived on iPhone, iPad and Mac with the iOS 8.4 update on 30 June. That means that every compatible iOS device that has been updated to the latest version of the software has Apple Music installed, and with a three-month free trial it's an appealing service for Apple users that has rivals such as Spotify scared, and for good reason.

Pricing and competition

Apple Music costs £9.99 per month for the individual membership, or £14.99 per month for the Family package, which offers unlimited access for up to six people. Some of the service's features are available for free, but they're very limited and there's no ad-supported version like there is for Spotify.

If you don't want to pay £9.99 per month for a streaming service, Spotify lets you listen to unlimited tracks for free, though you'll also hear some adverts and you'll have a limited number of skips.

The app

In our experience, the Apple Music app is initially overwhelming. Even the setup process, with its bouncing balls, is a bit chaotic. There are five sections to the app, and each of these has their own sections, all with varying menus and options.

There's a lot to get used to, and we found that it took a lot of trial and error, but after a few days of use things are became clearer.

Additionally, we're disappointed to find that Apple Music is a bit on the buggy side. It's early days and we're sure it'll improve with further updates, but right now there are lots of bugs in Apple Music, which can be very frustrating.

Music library

The Apple Music library features over 30 million songs from iTunes, though that's not the full amount of tracks available to buy from Apple's iTunes Store – there are more than 10 million tracks missing. That includes Prince

and The Beatles, but Apple has managed to convince Taylor Swift to sign up after she wrote an open letter to the company in protest against its plan not to pay artists for the three-month free trial. That letter led Apple to change its policy and in turn encouraged Taylor to allow your music to be streamed there. Apple Music is the first streaming service she's allowed her music on to.

But it's not just the songs that make the music library in Apple Music great. It's also the curated playlists put together by teams of experts in every genre. You'll find playlists for each genre, as well as moods and activities, and those playlists can only grow and improve over time.

There are also playlists that have been created by music magazines and websites, including *Rolling Stone*, *Q*, *DJ*, *Mojo* and Shazam.

Music discovery and recommendations

Despite the setup process, which involves you choosing genres and artists you like to help it decide what it thinks you'll enjoy, Apple

Music didn't get our music tastes quite right. In addition to the artists and genres you choose during setup, it'll also scan your Music library to see what you've already downloaded from iTunes.

However, the recommendations you'll see in the app's 'For You' section will improve over time as it learns what you like and don't like. You can tell Apple Music that you're enjoying a song by tapping the heart icon at any time, and you can tell it not to recommend that again by tapping and holding, and then pressing 'I don't like this suggestion'. With a little bit of tinkering, you should find that eventually the For You section gets it right almost every time.

You can add a song to the My Music library at any time, and save them so that you can listen to them offline. This will mean you'll be downloading songs on to your device, so it'll begin to take up space pretty quickly, but if you're about to jet off on holiday on a long flight, or don't want to stream music over 3- or 4G, for example, it can be very handy to have some new music to keep you company.

Audio quality

Apple Music streams at a 256kb/s bitrate, which makes it lower than Spotify's Premium 320kb/s, but higher than the 160kb/s offered with Spotify's free version. However, the services use different audio formats and you'll find it difficult to tell the difference in quality between Spotify's Premium quality and Apple Music. Both are satisfyingly good and it should only be audiophiles that are left wanting higher quality.

Connect

Connect is an interesting idea, but we think it has limited appeal. It's a feature that lets artists post videos, photos, messages and more for fans to see, like and comment on. Users are unable to post their own content, but can interact with the posts from their favourite artists.

If you're particularly fond of one artist that's active and posts exclusive content, you'll enjoy using Connect, but how often artists will actually use it is yet to be seen and we can't imagine everyone using it.

However, it's one of the features available for free, so even if you don't pay the £9.99 to subscribe to Apple Music, you'll still be able to see what's happening on Connect.

Radio

The star of the show when it comes to Apple Music's radio section is Beats 1 Radio, a worldwide, 24-hour radio station that is broadcast live from London, LA and New York. While listening, you can add songs being played to the My Music library so you can listen to them later. You'll also hear interviews with artists and other additional content, and many are comparing it to BBC Radio 1.

However, a bit like Connect, Beats 1 won't appeal to everyone. With the same tracks playing to every listener around the world, you're not going to like everything. You can't skip tracks as you can with the other Radio stations in Apple Music, and we've heard reports that it's prone to the occasional repeat if you're listening for long enough.

That said, it is one of the free features available even if you don't subscribe to Apple Music, and it has captured lots of fans already.

As mentioned, the other Radio stations available in the Radio section of Apple Music compare more closely with Spotify's Radio feature, acting more like infinite, skippable playlists based on a specific genre rather than live radio complete with DJs like Beats 1. They're essentially carried over from iTunes Radio, Apple's service that never actually made it to the UK.

You can also create your own Radio station inspired by a single song or artist at any time, by tapping the ellipsis button and then Start Station.

Radio is unavailable to listen to offline, though, so you'll need to be connected to the internet.

Siri and the Apple Watch

Apple Music is designed to work with Siri, with new questions about music available. You can ask Siri to "play more songs like this," for example, or to play the best music from a particular year, movie or genre. You can even ask Siri, for example: "After this song play *Black Magic* by Little Mix."

You can also access the music service with your Apple Watch.

Macworld's buying advice

Apple Music has a lot going for it, and we imagine that it's going to encourage lots of people to sign up, and a large percentage of people to leave Spotify, not least because it's automatically on every iPhone and iPad running iOS 8.4. It's seamlessly integrated into devices making it the most natural choice for Apple users.

Most people using an iPhone or iPad will sign up to the three-month free trial, even if they aren't familiar with music streaming services and what they offer. If they find that they're using it on a regular basis, they are likely to continue paying the £9.99 per month once the trial is over.

Of course, right now it's only available for iOS, but when it comes to Android later in the year Spotify will be even more concerned. For Android users and anyone looking for a free way to stream music, Apple Music is currently not an option, but it won't be long before that changes.

There's a lot of room for improvement with Apple Music, but it's certainly off to a good start. We'd recommend signing up for the three month free trial and trying it out to see whether you think it's worth paying for. You might be surprised with how much you enjoy using it. **Ashleigh Allsopp**

Apple Music vs Spotify
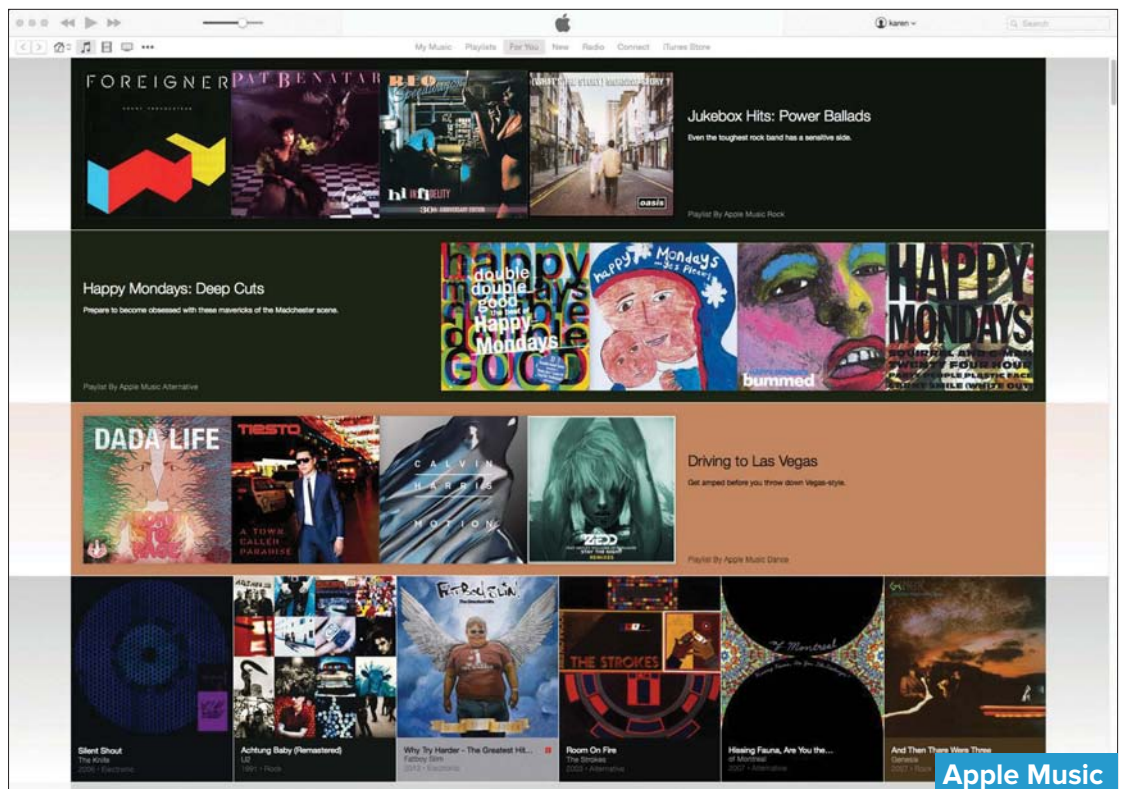
Apple Music

When Apple Music was unveiled at WWDC 2015, Spotify's CEO and founder Daniel Ek tweeted just two words: "Oh okay." The tweet was soon deleted, but it could well indicate that the company is worried by Apple's venture into the music streaming market that Spotify has dominated for several years.

Here we compare the two music streaming services, looking at what they have in common as well as their differences.

Price
Apple is currently offering a free three-month trial, so you can check out the service before you decide whether it's right for you. After the trial period has expired, Apple will begin charging £9.99 per month.

There is a free option of Apple Music, but it offers only limited features. With the free version, you'll get access to the Connect feature, where you'll be able to view and follow artists, though you won't be able to play, save or like content. You'll also be able to listen to the Beats 1 Radio station and listen to Apple Music radio stations.

You won't, however, be able to listen to the music you choose from the Apple Music library, which is where users will turn to Spotify, which offers an ad-supported option if you want to stream music for free and don't mind the lower quality and ad-filled content. Apple Music's free option also lacks offline listening (you won't get that on the free version of Spotify, either), or the tailored music recommendations feature.

Apple also offers a family package for Apple Music, which works through Family Sharing. Six individual linked accounts can have access to Apple Music at a cost of £14.99 per month with the Family membership option.

Like Apple Music, the paid-for (Premium) subscription for Spotify is £9.99 per month and offers unlimited streaming with no ads at a higher quality. There's also the option to set up a family account. Priced £29.99, five people will be able to access the account. This is, however, double what a family would pay if they signed up to Apple Music, and we imagine that it won't be long before Spotify adjusts this pricing model to match or beat Apple's.

One option that Spotify does offer that Apple currently doesn't is a student discount – £4.99 for the Premium subscription.

Catalogue
Apple Music takes advantage of Apple's already huge iTunes Library, which has more than 40 million tracks, though you'll only be able to stream just over 30 million of those. You'll also be able to listen to your own songs ripped from CDs or already downloaded from iTunes.

Spotify also offers more than 30 million songs, although a noticeable omission is Taylor Swift, who Apple managed to win over when it revised its policy and promised to pay all of its artists royalties during the three-month free trial.

Audio quality
The audio quality of Apple Music is currently limited to 256kb/s. That means it's lower than the 320kb/s offered by the Premium option in Spotify, but higher than the 160kb/s offered in the free version. It's important to note that Apple Music is AAC, whereas Spotify's tracks are MP3 and 256Kb/s, AAC is considered to be higher quality than MP3.

Compatibility

Apps are available for both Apple Music and Spotify. There's already a Spotify app for Windows, Mac, iOS, Windows Phone and Android. Apple Music won't be available on Android until later this year and it's currently unclear whether Apple is working on a Windows Phone app.

Other features

Both Apple Music and Spotify allow you to pick and choose which songs you want to stream as part of your subscription. They also boast personalised recommendation algorithms and playlists designed to suit your mood or activity.

They also offer radio stations, which are created by choosing a particular artist or song and letting the service determine what you want to listen to. In Apple's case there's a 24/7 DJ-led radio station available anywhere in the world.

And as we touched on earlier, both service's paid-for options offer offline listening.

Music discovery

Let's start with recommendation tools that help you discover new music. As music lovers, we're always looking for something new to listen to, and Apple Music and Spotify both provide personalised suggestions.

Spotify's recommendation tool is called 'Discover,' which offers up artists, albums and individual track suggestions based on your listening history and favourites. You won't see playlists in the Discover section, which is a shame, but overall we've found the suggestions to be useful and have come across new artists that we now listen to regularly.

We particularly like the Browse section for music discovery in Spotify, because there you'll get a top lists, genres and moods, new releases and news for an overview of what's popular around the world.

Browse on Spotify also knows what day and time it is, and tailors what it shows you to suit that. On Monday mornings, it'll show playlists that'll give you a bit of a pick-me-up, on Friday afternoons you'll get music that helps you get ready for the weekend, and on Sunday you'll get lazy day playlists, for example.

Apple's discovery offering is called 'For You,' and like Spotify it shows you recommendations that
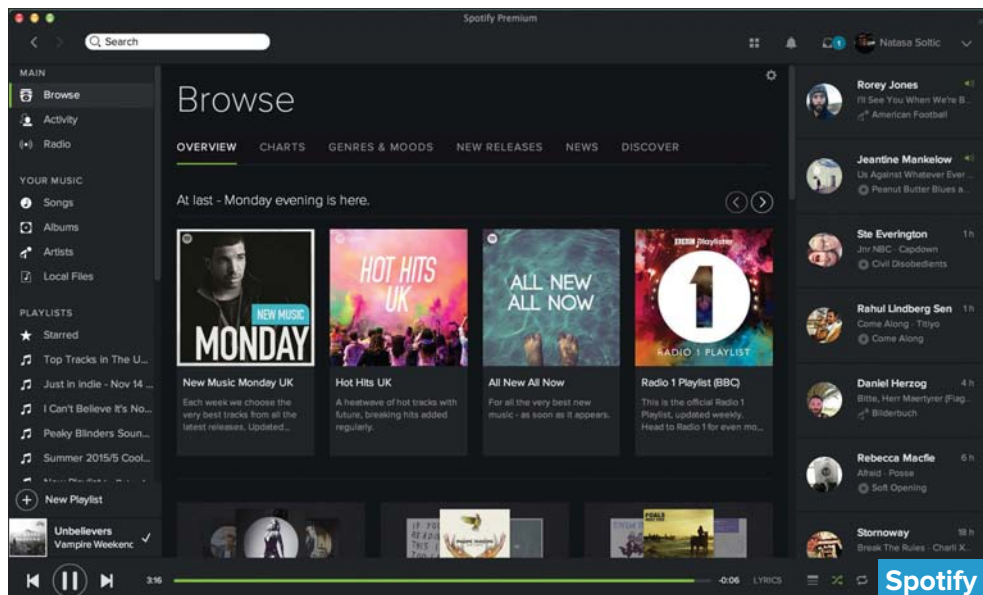
it tailors to your music taste. The first time you use the service, you'll be asked to choose your favourite genres and artists – tap once on the artists you like and twice on those you love. This will kickstart the recommendation engine.

Apple's recommendations include albums and playlists, and several of those playlists come from experts in different genres, as well as music magazines and websites such as *Rolling Stone*. Apple has put lots of emphasis on the 'human' element to its recommendations.

Both Apple Music and Spotify's recommendations can be fine-tuned by clicking the like or dislike buttons, so the more you use them, the better they'll get.

Radio

As mentioned, Apple Music has its own 24/7 radio station called Beats 1. It's based in three locations around the world, and its run by former Radio One DJ Zane Lowe, along with Ebro Darden and Julie Adenuga. Wherever you are in the world, the music will be the same on Beats 1. It's an interesting idea but we've discovered that there are lots of people who don't enjoy listening to it, as it's not always going to be the kind of music they like to listen to.

Aside from that, Apple Music and Spotify offer similar Radio functionality. Both let you pick an artist (or in Apple Music's case an artist song or album), and create radio stations based on that, with music from that artist and similar artists included.

Social

Apple Music has a feature called Connect, which is where the social element of the service comes in. Artists can post photos, videos and more to connect with their fans, and those fans can comment on and share those posts. Users can't create their own posts, so it's not designed to be a replacement for Facebook or Twitter, but we imagine it'll be a compelling reason for many music fans to join the service if the content is exclusive.

On Spotify, social integration with Facebook is available, so you'll be able to see what your friends have been listening to. This is a big draw for Spotify, and something we feel Apple Music lacks.

Macworld's buying advice

Even if you're already a Spotify user, we'd recommend giving Apple Music a go during its three-month free trial to find out whether you prefer it. It's easy to cancel the automatic subscription renewal to Apple Music to make sure you won't be charged.

For anyone who doesn't want to pay for their music subscription service, Spotify's free option is a better choice, but with such similar price tags overall it'll be a tricky decision between the two. For iOS and Mac users, Apple Music makes sense, as it's fully integrated into the software including Siri. However, if you've already built up a Spotify library with lots of playlists, switching to Apple Music will mean starting from scratch, which is less than ideal. **Ashleigh Allsopp**

QuarkXPress 2015

Specifications

OS X 10.8.5 or later; Mac Intel processor; 2GB RAM or higher (1GB available for QuarkXPress); 2GB hard disk space; an Internet connection for activation

The past several versions of QuarkXPress added features that were most requested in Quark's user surveys, and QuarkXPress 2015 continues this strategy. For example, its developers have changed its version numbering scheme to indicate the year of release (otherwise this would be QuarkXPress 11), and the product is still offered with a traditional perpetual license rather than requiring an ongoing rental fee.

The big new features include fixed-layout eBooks, text variables that automatically populate content such as running headers, a new table feature with Excel integration, automatic footnotes and endnotes, and PDF/X-4 output.

ePub enhancements

A large portion of Quark's user base produces corporate communications, financial reports, books, and other publications. QuarkXPress 2015 enhances these kinds of workflows. (In many companies, the software is just one part of a multi-stage automated system that produces electronic, printed, and web documents.)

The ePub format has two variants: Reflowable, commonly used for novels, textbooks, and other simple text-and-pictures publications; and the newer Fixed Layout ePub, the preferred format for publications whose layout is as important as its text and pictures – for example, children's books, travel guides and cookbooks.

The eBook layout space in QuarkXPress 2015 supports both Fixed and Reflowable ePubs. (While you cannot export a Fixed Layout ePub from an existing Print layout, you can still build a Reflowable ePub from an existing Print layout.) There are benefits and drawbacks to this forked approach, and its value depends on your existing content and future plans. The main benefit to Quark's approach is that you can design one layout for your eBook and let QuarkXPress optimise its page size and special features for each output format.

Once inside your new eBook document, you can use all the rich layout tools in QuarkXPress, including sharing Style Sheets, Colours, Item Styles, Footnote Styles and other attributes across Print, App Studio and eBook layouts. This makes it easier to keep an identity consistent across multiple layouts.

Four years ago, Quark's App Studio was the first user-friendly tool to convert publications into complex, interactive iOS apps. With the recent ratification of the EPUB 3 standard, Quark has now migrated its HTML5-based App Studio tools into all the QuarkXPress 2015 layout spaces (Print, eBook and App Studio). This means that you can now use the familiar App Studio interface to build interactivity into ePub files – including Audio, Video, Slideshows, Animations, 360-degree images and Buttons.

The existing Reflowable ePub features have also been dramatically enhanced. For example, you can now apply an unlimited number of Style Sheets; CSS styles are automatically generated from QuarkXPress Style Sheets; you can use the new HTML5 palette to add audio and video interactivity to items; you can include items on the Pasteboard in the reflow (for example, to use a different picture in the ePub than in the print document); you can use Callout Anchors to insert pictures into the text flow without needing to split the Story into multiple components; and you can tag and export to Reflowable ePub from App Studio layouts. A variety of tagging functions have also been streamlined to make converting to reflow a less tedious experience.

Content variables

Previous versions of QuarkXPress let you repeat common text throughout multiple layouts, so that when you change one, they

all change. Now you can also create Content Variables that grab information from one place and display it elsewhere. A common use is to generate a running header that displays a chapter or section title, which is pulled from document text formatted with a specific style sheet. Another is to refer to the location of an object elsewhere in the document, including its page number (even if that changes), and a hyperlink to it.

QuarkXPress 2015 can create both Footnotes and Endnotes, as well as import them from a Microsoft Word document. (Footnotes appear at the bottom of a text box, column or page, while Endnotes appear at the end of a section or chapter.) This feature is smart enough to continue a long Footnote on the next column or page if it doesn't entirely fit on the current one.

The table feature in QuarkXPress was long overdue for an overhaul. But rather than enhancing the existing table feature, Quark chose to create a new Inline Table feature. You can apply a Table Style to Inline Tables, which keeps multiple tables formatted similarly, and the table data can be linked to an external Excel spreadsheet.

These new tables must be placed as items inside the flow of a text box, which makes it easy to automatically export them into Reflowable ePub documents. The content of an Inline Table behaves much like the content of a picture box: you can change some qualities of its appearance in QuarkXPress, but the actual data can only changed by editing the file it's linked to. So, to change the text in an Inline Table, you must edit the Excel spreadsheet and then update the table using the Usage dialog in QuarkXPress.

Verified PDF/X-4 output

Printing professionals have been clamouring for QuarkXPress to output to the PDF/X-4 standard for quite some time. This PDF standard supports native transparency and DeviceN as the output colour model, which creates smaller PDF files that print faster and are essential to some workflows. Specifically, imported graphics in PDF, AI and PSD format maintain their native transparency when exported from QuarkXPress. This issue is

so important that the default PDF Output style in QuarkXPress 2015 has been changed to export native transparency instead of flattening it.

Support for legacy documents

One important issue must be noted: QuarkXPress 2015 will only open documents last saved by QuarkXPress version 7 or higher. If you have older documents, be sure to download Quark's free QuarkXPress Document Converter application that opens legacy files from version 3 to 6 and saves them in a format that QuarkXPress 10 and 2015 can open.

In addition, Quark has dropped support for the bitmapped frames available in earlier versions of QuarkXPress. When you are open a legacy document that uses one of these frames, QuarkXPress 2015 alerts you that these frames are no longer supported. There is no easy workaround.

The small improvements

Every mature application benefits by refining the ways its daily users interact with it. Having completely overhauled the QuarkXPress interface several versions ago, Quark has now improved many of the rough spots identified by its users. The first change is that there is no installer – instead, you simply drag the application to your Applications folder. Another under-the-hood change will be enjoyed far longer: QuarkXPress 2015 is now a 64-bit application, so it can make better use of your computer's RAM. This results in dramatically faster viewing of imported graphics and exporting of PDFs, and since the text engine is now multi-threaded, you can more fluidly work with complex text objects such as tables.

Pages can now be much larger: up to 224x224in instead of the previous limit of 48x48in, and you can now save named, custom size presets for new layouts. To accommodate these larger page sizes, you can now scale pictures up to 5000 percent.

Additional small improvements make creating your layouts much more fun. For example, a new Format Painter lets you copy attributes from text and apply them to other text. You'll find it in
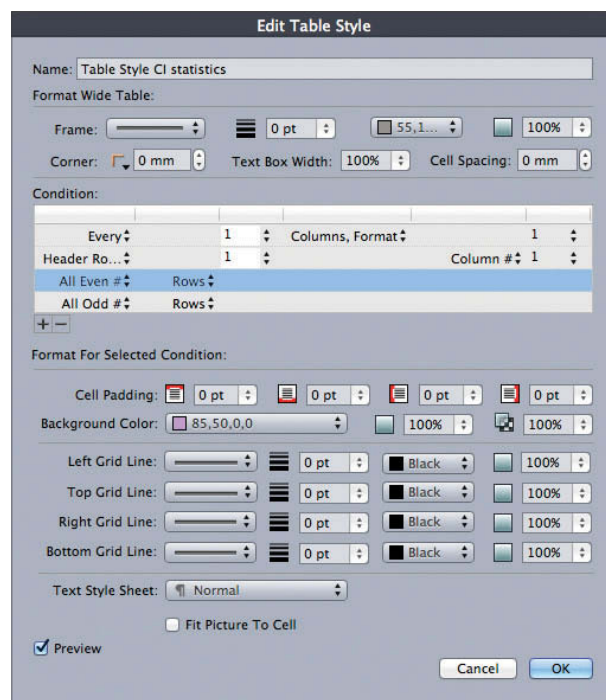
the Home and Character tabs of the Measurements palette, and it also has keyboard shortcuts. Speaking of which, you can now assign or change keyboard shortcuts for menu items or other actions, and save them as custom sets.

You can now filter the items in the Style Sheets, Colours, Hyperlinks, and Content Variables palettes by name, which is handy since these palettes can often be quite lengthy. Thankfully, WYSIWYG font menus can once again be disabled – QuarkXPress 10 had inexplicably removed that ability.

Other practical improvements include automatically viewing a PDF after exporting it, and collecting all the assets from all the layouts in a project using Collect For Output – previously, only the assets from the current layout could be collected. You can now use the Usage dialog to relink any imported picture to a different picture file, and the Usage dialog now displays file names without cropping long names to fit.

Macworld's buying advice

QuarkXPress 2015 is a valuable upgrade for QuarkXPress users who make ePub files, work with lots of tables or footnotes, or need running headers. By also providing the top 10 most-requested feature improvements, Quark has made this an upgrade every user will want. **Jay J Nelson**

As with most Styles in QuarkXPress, you have control over the smallest details of a Table Style.

Microsoft Outlook for Mac 2016
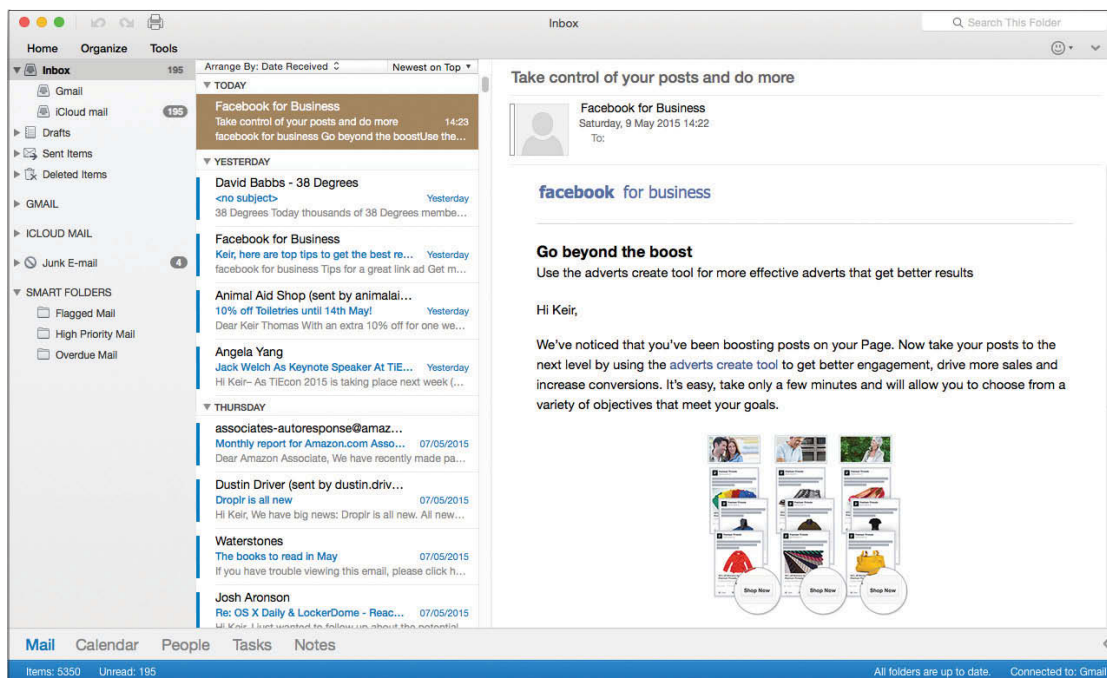
Increasingly a gem in the Office crown to rival big-hitters like Word, Outlook's new-found performance is almost worth the price of admission alone. It's like somebody's squirted WD-40 into the older Outlook app. Put simply, there's no longer any waiting around while you scroll through emails, or select messages buried deep in your inbox. Searching is also much faster, even on older Macs.

The new Ribbon-only interface complete with blue status bar also looks good. It's clean and there's little trouble finding where features are, or finding out what's Outlook is up to in the background.

The downside is that Outlook is still a tool focussed on accessing Exchange servers – it feels like a tool from Microsoft for Microsoft products. It'll tune into other email and calendar services adequately but there isn't any attempt at full integration with iCloud, as one example, or Gmail. Outlook simply connects to the iCloud email and calendar servers like any other third-party email/PIM app. Although Outlook has a Notes, Tasks and People view, these are essentially inaccessible on your mobile devices or indeed another instance of Outlook running on other Macs you own.

The lack of integration with the system address book is particularly frustrating and leads to the user opening the Contacts app to look up an address when it's first required, or searching through old emails. Outlook is compatible with LDAP so in theory you might be able to configure a connection to iCloud but it's not taken care of by the setup wizard.

Another annoyance is that this updated Outlook still lags behind the Windows version in features. The complaint that users had about the earlier Entourage app – that it was essentially Outlook Lite – still cuts close to the bone. You can't schedule the sending of emails, for example, as you can with Outlook for Windows. There may be some design decisions at play here – after all, it isn't the Mac way to throw 1,000 features at the user, and Microsoft's Mac team has always been respectful of this – but it's annoying Googling how to do a task and receiving instructions only possible if you're using Windows' Outlook.

Although core features like email filtering are present, and highly usable, there are things missing that are simply common sense in the 21st century. Outlook hasn't heard of the cloud, for example, so forget about iCloud, Dropbox or even OneDrive attachments. If you want to send an attachment over 20MB via iCloud (or 25GB for Gmail), then you'll need to upload it manually somewhere. Outlook isn't even entirely compatible with the new-ish Outlook app for iOS, which lets you archive and send received messages into the future with a swipe. The messages are simply marked with a Follow-Up flag in the desktop app, which is hard to spot and inconsistent.

Curiously, Outlook lacks full-screen mode even though the other new Office apps work fine with this.

Macworld's buying advice

These criticisms can be set aside, however, because at its heart the new Outlook is a solid email app that's surprisingly stable and usable in this early release. In terms of features, it's more of a sports car than the four-wheel drive off-roader of its Windows sibling, but this is perhaps no bad thing. For over a decade Apple's own Mail app has veered consistently between frustration and usability, so the new Outlook's light touch, plus its blazing speed and decent core features, are a much-needed breath of fresh air. **Keir Thomas**
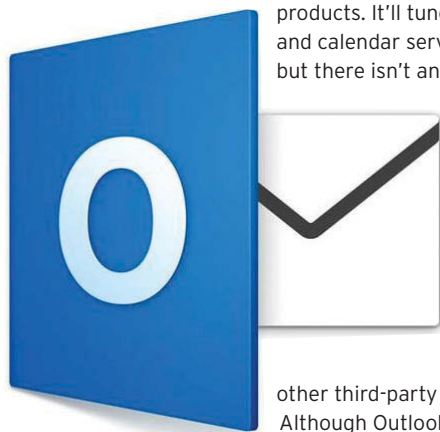
Microsoft PowerPoint for Mac 2016

Macworld

PREVIEW
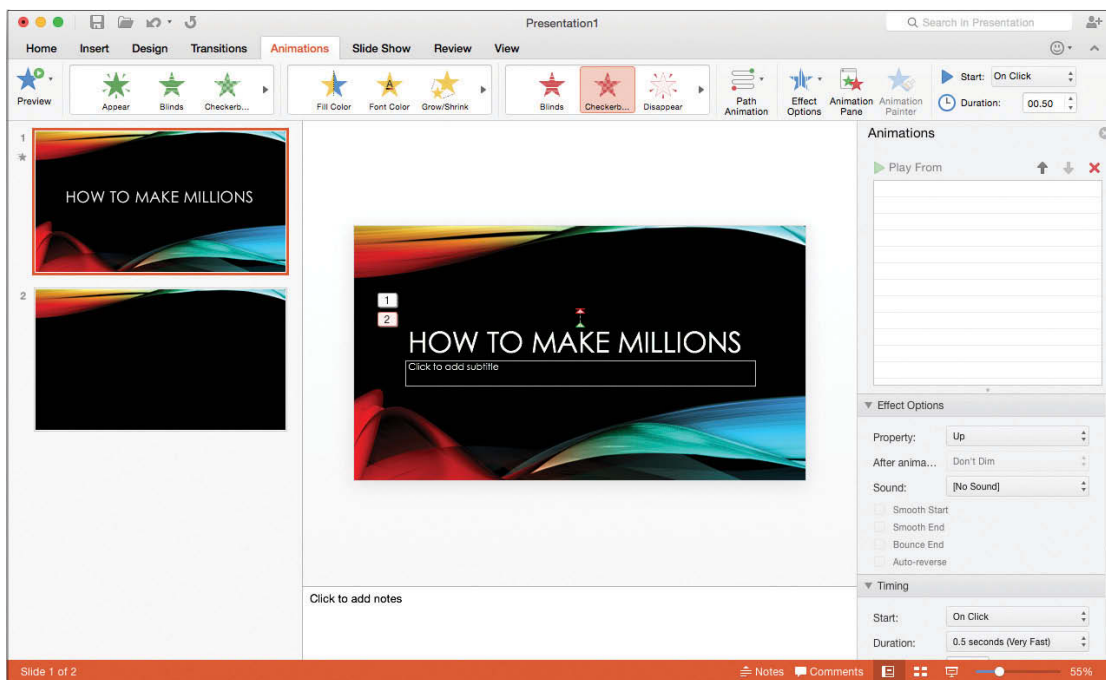
As with other apps in the new Office, updates to PowerPoint are there largely to keep it synced with the Windows release. Thus you get the same collaborative/co-authoring tools, plus the ability to connect with OneDrive, as well as new slide transitions.

There's only one big new feature outside of the global updates, which is a pane that appears at the right of the screen when an animation is applied to an on-screen element. Previously, what there were of these options were scrunched-up at the right of the Animations ribbon or assigned to the now-banished Inspector/Toolbox floating window (provided you had it open or even knew of its existence). With a pane all to themselves, the myriad of tweakable options are in plain sight of the user and easily adjustable.

Switch to viewing comments via the status bar button switches the side pane to a tabbed view, where a Comments tab shares space with the new Animations tab. Notably, tabs can be 'torn away' just like browser tabs to create a new floating window, so the Inspector/Toolbox lives on in perhaps in spirit.

Outside of the collaboration/cloud features mentioned earlier, however, the benefits of the new release are found mostly in the improved interface. The number of ribbon toolbars has again been rationalised, with the Tables, Charts and SmartArt ribbons now finding a home on the Insert ribbon. The Themes ribbon has been swapped for a Design ribbon, although otherwise appears mostly the same, while there's an entirely new View tab that lets you switch between Normal, Outline, Slide, Notes, and Handout views without needing to use the menu or status bar. Although this degree of redesign might spook those who've been using PowerPoint 2011 for a long time, the reality is that it's all common sense and the clean user interface design clears-up any risk of ambiguity. Everything's the same. Just better.

Presenter mode, wherein you can attach an external display to show a presentation while seeing a preview plus notes on the Mac's built-in screen, has also been visually overhauled so it sleek, and not as clunky/1990s as the previous release. It's also gained a button that lets you switch between the main and built-in displays quickly.

As with the other Office apps, the Scrapbook has been banished.

Macworld's buying advice

In terms of features PowerPoint is at least the equal of the former version, but in terms of usability it's advanced significantly. It really is commendable that Microsoft has managed to concertina so many features into a ribbon-based interface that can even look Spartan at times despite the power on offer. Above all, however, the clunkiness of the old PowerPoint is a distant dream. The new PowerPoint feels positively nimble. **Keir Thomas**
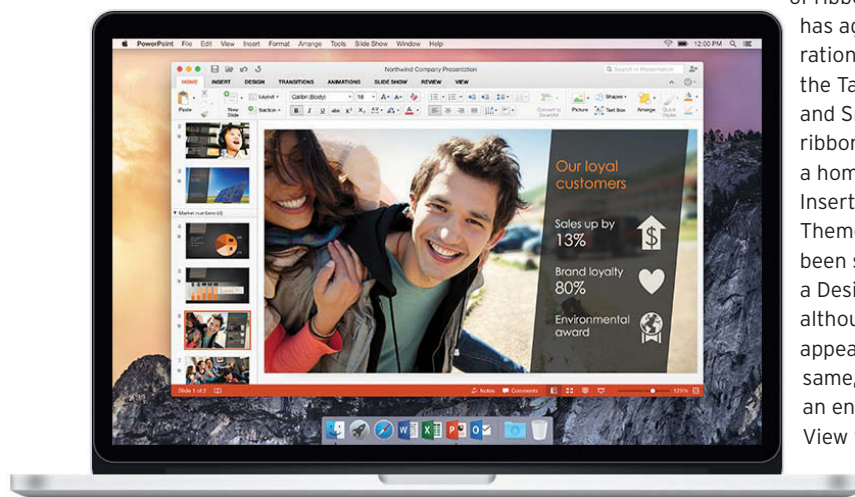
Help Desk

Answering your questions about getting the most from your Mac and iOS device

iOS and Mac SOS

Solutions to your most vexing Mac and iOS problems

BY GLENN FLEISHMAN

A look at Photos

The OS X version of Photos continues to provoke more questions than any other topic, probably because so many people have used iPhoto for so long and are working through the transition to software that was released while a little too green.

In some cases, features have transformed and can still be found in other places or through other means. One hopes that some cherished options will return in future updates. While Apple doesn't respond to feedback, it does accept it. If you want to see features return, you can file a request at tinyurl.com/pwL93ng.

Share photos

Q: Can we still create a public website using the Share button? I used that in iPhoto to share photos with friends who don't have any Apple hardware.

JC Bronson

A: Yes: it's now called iCloud Photo Sharing. In *Photos ➔ Preferences*, click the iCloud button and check iCloud Photo Sharing to enable it. Then you can select any photos or albums, click the Share button in the top right corner of Photos, and create a shared iCloud album.

You can invite people to that gallery, and even let them add photos and videos. You can also click the album menu (a person's head in a circle as an icon), and check Public Website to open it up to anyone who has the URL.

Photo count

Q: One item I cannot seem to find with the new app is the photo count for the albums column. There doesn't seem to be a quick-glance way of seeing how many images are in each album you've created without opening the album.

Gary Prescott

A: You're correct. You must select an album, at which point the photo count appears in the upper right of the display, as well as in the Info pane if you have that displayed (*Windows ➔ Info*).

Undo button

Q: When editing photos, the Undo button is great. Where is it in Photos?

Fred Tollison

A: It's still there, but its function is a little different. After selecting an image and clicking the Edit button in Photos' upper-right corner, each of the seven items have their own separate Undo. Click Enhance, and you can select *Edit ➔ Undo*. But if you click Enhance, and then click Adjust, even without making any other changes, the Undo option is greyed out. You can always click Revert To Original, but then you lose all the changes you've made.

If you delete one or more pieces of media, there's no Undo for that, though Photos doesn't trash the items immediately. Instead, it puts them in a Recently Deleted holding pen for 30 days, which you see by choosing *File ➔ Show Recently Deleted*. From there, you can select items and click Recover, or permanently delete by clicking Delete.
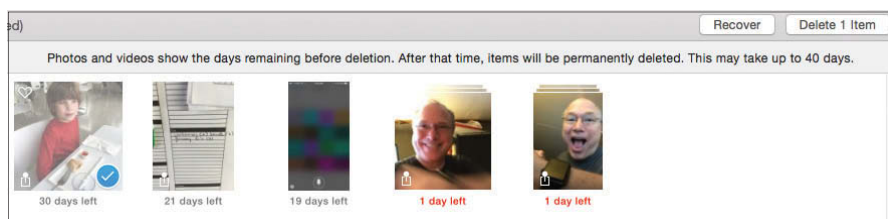
The **Recently Deleted** special holding area keeps images you've trashed for 30 days.

Copy and paste

Q: I cannot seem to copy and paste a photograph from my photo library to a Word document.

Matt Fisher

A: This should work, but I've found cases in which an image is displayed, but it's not 'selected' in the way that Photos wants to let you copy it. Typically, when you're viewing images in any thumbnail view, you'll see a blue-selection rectangle around any chosen images. The same is true when you have the Split View enabled (*View* ➤ *Show Split View*) for viewing images at full-size within the Photos window. If you click Edit and then click Done, the image appears selected, but *Edit* ➤ *Copy* is greyed out. Reselect or switch from Photos to another app and back. You can also drag one or more selected images into most other apps.

Question time

Q: Can I run a query to see if a photo is not attached to an album?

Jurgen Bosmans

A: There's no way to perform that query through the regular Find field or through Smart Albums. You can search for matches within albums using Smart Albums and perform date-range matches, among other operations.

Delete images

Q: After upgrading my photo library to the Photos app, I imported photos from an SD card that was in a field camera. While the import went well, I was not offered the option to delete photos from the card nor could I find a way to do this.

Jay Kappmeier

A: In my testing with an SD card, the option was there, but it has to be selected when you perform the import. The Delete Items After Export checkbox appears for any mobile device, card or drive, except iCloud-linked iOS devices. Check that box before clicking Import Selected (if you've chosen images) or Import All New Items.

You can also find this option in Image Capture, an alternative to managing import to Photos, other apps or a folder, that also lets you directly delete media off an attached device by selecting items and then clicking the delete (red circle with a slash) icon at the screen's bottom. Apple's reconceptualisation of photos in iOS and OS X has them existing everywhere (sometimes as thumbnails) and nowhere (Where is the master copy? Is there a master copy?). This means that 'deleting' pictures from an iClouds-linked device isn't necessary except permanently from the cloud and

everywhere. You'll see a cloud next to an iOS device that uses iCloud Photo Library in Image Capture.

Large photo library

Q: I have many iPhoto and Aperture libraries with over 60,000 photos. I have wanted to have them all listed in a single library, but iPhoto and Aperture could not handle that many photos. Can the new Photos app handle that many?

Ricky Shipard

A: Ostensibly so. Apple says that your only limit is the size of the drive on which you're storing the library and, with iCloud Photo Library, how much storage you've paid Apple for. I have over 40,000 photos

in my Photos library, and the only problems I've had are uploading efficiently to iCloud and dealing with individual images which sometimes inexplicably stall.

Cloud storage

Q: I updated my Mac with the new Photos app and signed up for the iCloud storage feature. All of my 12,000+ photos, as well as manual folders I had created in the past, synced to iCloud. I updated my iPhone as well and turned on the iCloud Photos feature. My images are visible there too, as are the manual folders. Can you figure out why the 'smart albums' do not sync? They are key to how I organise my pictures.

Christine Morel

A: This is understandably maddening. Smart Albums only sync among Macs running Photos that are logged into and syncing with the same iCloud Photo Library. Smart Albums are not yet available at iCloud.com, nor in iOS. This seems like a missing piece instead of an intentional and permanent design choice. Hopefully, it's a feature we will see return in El Capitan.

You can search for matches within albums using Smart Albums and perform date–range matches, among other operations

Smart Albums are technically created as a search query, matching results and updating whenever photos are modified. Perhaps it imposes too much of a computational burden in iOS and on Apple's iCloud server? We can hope this changes in future releases. (If you're not seeing the same Smart Albums on all your synced-together Macs, there may be a syncing problem or you have the wrong library selected if you switch among them.)

The Bluetooth truth and more Wi-Fi troubleshooting

When it first came out Bluetooth was a low-speed, low-bandwidth networking technology that appeared to be destined

for the obsolescence pile. Several competing standards with broadcast industry support arose to challenge it with lower-power requirements, higher throughput, or both.

Bluetooth won out by extending what it does and co-opting what others attempted (and failed) to provide.

But this may be confusing when you're not using a Bluetooth peripheral, like a headset, headphones, or mouse, and wonder why iOS, your Mac or your Apple Watch is complaining about its absence or not functioning as expected.

AirDrop requires Bluetooth

One reader wrote in wondering what happened to AirDrop between Mavericks and Yosemite: why was Bluetooth required? Others have reported problems with AirDrop, too.

The reason that the iOS and OS X versions of AirDrop lacked compatibility until Yosemite is that Apple used a special Wi-Fi mode in OS X, but opted for a different approach that combined Bluetooth and Wi-Fi in iOS. Yosemite switched to that version, though a backwards-compatible option remains.

Bluetooth is used for signalling, or sending information related to forming a connection, passing control data (like performing an action) and the like between the same kind of devices and different ones. The Apple Watch uses Bluetooth 4.0, which has an extremely efficient low-energy mode, to communicate with an iPhone.

That limits the range the Watch and an iPhone can be apart, but it also makes the watch's battery life feasible at its current weight. Continuity in OS X and iOS also relies on Bluetooth to send tiny bits of detail. All of these devices switch to Wi-Fi for high-speed bulk data transfer using a Personal Area Networking (PAN) mode that allows an iOS or OS X device to remain connected to the internet and transfer data with other Apple hardware.

IMG_0016.JPG IMG_0015.JPG IMG_0014.JPG IMG_0013.JPG

IMG_0012.JPG IMG_0011.JPG IMG_0010.JPG IMG_0921.JPG

CANON_DC
Connecting this camera opens:
Photos.app
Delete after import

Import To: Pictures   Import   Import All
1 of 454 selected
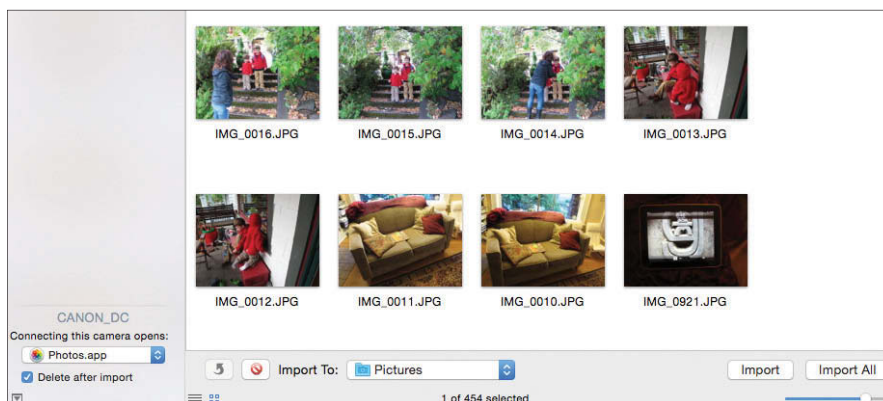
If you're having trouble getting AirDrop, Continuity features such as Handoff, or your Apple Watch to work, you can try toggling Bluetooth and Wi-Fi on and off, and Airplane mode on a Watch or iOS device. In a house, one intervening wall made of signal-blocking material, like plaster over wire or brick, can also block Bluetooth's effectiveness even while Wi-Fi can still blast through it.

Base station security

I'm repeating here in brief some hard-won Wi-Fi advice I mentioned in passing. Apple's base stations (and all current base stations I'm aware of from other manufacturers) allow roaming by default. Choose a network name from any device, and all base stations with the same parameters and same network name will let you roam about.

What I discovered is that if you have different security methods that use the same network password, roaming works erratically rather than failing.

Around five years ago, there were still plenty of bits of hardware and computers that couldn't use the newer WPA2 Personal encryption protocol. Plain old WPA had been designed to be backward-compatible with hardware that had shipped, including every computer released by Apple since 1999. But WPA2 required newer hardware, typically only working on base stations and clients from 2003 and later.

Image Capture lets you delete individual items, or delete items after importing, for all but iCloud Photo Library-linked iOS devices.

Apple solved this problem in its base stations by offering mixed WPA/WPA2 Personal encryption. Select this, and your newer devices would connect using WPA2, while older ones weren't left out. (If you find that pre-2004 Macs won't join a Wi-Fi network and don't provide an error, that's why: the network is WPA2-only and the Mac doesn't understand why it's being rejected.)

In my case, I had one base station that used an ancient configuration file that I'd kept transitioning over the years as I moved from one model to another of AirPort, even as I added two more base stations in the house connected via ethernet that I configured as passthrough. Macs and iOS devices sometimes lost a connection in one room of the house or strained to reach a base station several rooms away rather than the nearest one!

In helping to troubleshoot a Wi-Fi problem recently, I went into the innards of my base station to check my own settings, and, lo, there was terribleness.

If you launch AirPort Utility, select your base station, click Edit and select the Wireless tab, you'll see what security option is set. While WPA/WPA2 Personal is an option in the Wireless Security menu, choosing it was my downfall because I had just WPA2 Personal enabled on two other base stations. When I switched that main base station to WPA2 Personal, my roaming difficulties went away. If you encounter similar problems, check that all your base stations use identical security settings.

The reason that the iOS and OS X versions of AirDrop lacked compatibility until Yosemite is that Apple used a special Wi–Fi mode in OS X

Consolidate your photo library

Glenn Fleishman reveals how to import, merge, and consolidate your libraries in Photos for OS X

Photos for Mac is finally out. And that's a real "finally" given how long we've all been wrestling with the limitations of iPhoto in OS X and Apple's early announcement of its replacement. Photos for OS X has a lot going for it, especially in speed. But it's also a ground-up rewrite of our Mac photo experience, and some pieces are missing, some moved, and some broken. Here we'll answer some of your questions.

Merging libraries

Several people have asked how to cope with multiple existing iPhoto libraries. Harald wrote, "Do I import them one after another into the new Photos for Mac? And which one will be the default System Photo Library?"

Like iPhoto, Photos can load just one library at a time and only convert libraries to its format. You can import a library other than the default one you used with iPhoto into Photos by holding down the Alt key and launching Photos. It then lets you select any iPhoto library you've already converted (either the original or the Photos-converted version) or click Other Library to find another one.

There's no tool in iPhoto or Photos for merging libraries, and you can only import photos and folders of photos from within Photos. You have a few different paths to take, although you will lose something no matter which route you opt for. That includes potentially losing metadata, location tagging, and edits. If you have Aperture, you can import multiple iPhoto libraries into its format, then import the Aperture library into Photos.

iPhoto

You can export images either in their original unmodified form or in the 'current' form, which is the way they appear including any edits in the library. Select any set or all photos. Go to Export and from the Export dialog box, choose either Current or Original from the Kind pop-up menu, then click Export. Select a destination and click OK. Drag the exported photos into the Photos library or use *File → Import* to select and import them. Repeat for each library.

Photos

Launch Photos and select an iPhoto library you want to merge with another. After conversion, choose *View → Albums* and double-click All Photos. Select *Edit → Select All*.

You then have two options. First, you can choose *File → Export Unmodified Originals* and click Export. This will exclude all changes to an image made within Photos or imported from iPhoto.

Alternatively, you can select *File → Export [number] Photos*, pick a format, and click the expansion triangle, then select Full Size from the Size menu. Unfortunately, while this preserves the current state, it exports all photos into either TIFF, PNG, or JPEG formats, rather than the original file format.

Next, choose a destination. Close Photos and reopen it with the library you want to merge into. Drag the exported photos into the Photos library or use *File → Import* to select and import them.

If it's worth it to you to spend $29.95 (£19.70), there's another course of action: the third-party utility iPhoto Library Manager from Fat Cat Software (fatcatsoftware.com). The utility includes the ability to merge iPhoto libraries. A trial version allows you to preview what a merger would look like.

Consolidate isn't a merger

The Consolidate feature works separately from Import, and doesn't allow you to 'consolidate' multiple libraries. In iPhoto and Photos, you can keep originals stored in folders, and only have the app keep track of changes and metadata. But those images can't be included in iCloud Photo Library, and keeping them outside of the Photos library also makes the library less portable.

Choose one or more images, up to the whole photo library, and then go to *File → Consolidate*. In testing, Photos asked for permission to access a folder outside its library, which we gave, and then crashed every time we tried this. One assumes either our library has a problem or Apple needs to fix this in a future update.

The pause that refreshes

One final quick note about iCloud Photo Library. Unfortunately, Apple hasn't built a throttle into the upload or sync operations. So if you have gigabytes of files to upload, it will fill this entirely.

Based on our testing, it looks like Photos will download files already in your iCloud Photo Library and perform other background sync operations before uploading new files from the local Photos cache. However, in Preferences, you can click the iCloud button and then click Pause for One Day to give your broadband a break. Before the day is up, you can click Resume at any time.

Add Glances to an Apple Watch

Lewis Painter reveals everything you need to know about Glances

The easiest way to explain what Glances is to compare them to Widgets in the Notification Centre on your iOS device. Much like widgets, the glance feature is designed to give you snippets of information that you can glance at to gain a quick overview, without getting your iPhone out of your pocket. That's one of the main purposes of the Apple Watch; spend less time interacting with your iPhone, and more time interacting with the world around you.

Glances can have a variety of functions, and they're easily accessed – just swipe up from the bottom of the display on the watch face. Glances can include information about the weather or traffic updates for your journey home.

Add Glances

It's an easy process to add Glances to your Apple Watch. When initially setting up the Watch, if you selected 'Install all apps automatically', then any Apple Watch companion app to an app already installed on your iPhone that has an accompanying Glance will automatically be added to your Glances line-up.

However, if you opted to manually organise your Apple Watch companion apps, you'll have to manually add the accompanying Glance when you install the app on your Watch.

To install a Glance, you first need to open the Apple Watch app on your iPhone with your Apple Watch connected. Then, scroll down to the list of third-party Apple Watch compatible apps, and install your chosen app. Once it has been installed, simply toggle 'Show in Glances' to add it to your Glances and it'll appear on your Apple Watch the next time Glances are accessed.

There's another way of adding, and more importantly, organising your Apple Watch Glances. Simply open the Apple Watch companion app on your iPhone and tap on the Glances menu. From here, you can see a list of all the Glances already installed on your Apple Watch, as well as a list of Glances ready to install.

To install a new Glance, tap the green '+' icon next to its name to add it to the list.

From here, you can also reorganise your Glances, so you don't find yourself swiping between them, trying to find a specific one. This is achieved by tapping, holding and dragging the three-lined icon next to each Glance into an order that works for you, and will automatically be updated on your Apple Watch.

Remove Glances

It's just as easy to remove Glances from your Apple Watch. As before, access the Apple Watch companion app on your iPhone and tap on the Glances menu. From here, all you need to do is tap the red '-' icon next to the Glance that you'd like to remove and then tap 'Remove' to complete the process.

Alternatively, you can scroll down the main menu to access the list of third-party apps that are compatible with the Apple Watch, select the app whose glance you'd like to remove and deselect 'Show in Glances'.

How to take a screengrab

David Price shows how to capture a screengrab from your Apple smartwatch

Taking a screenshot on an Apple Watch – like taking a screenshot on an iPhone or iPad, or taking a screenshot on a Mac – is reassuringly simple: you press the Digital Crown and the side button at the same time. You'll hear a shutter sound effect, the screen will blink white, and a static image of whatever was on the screen at the time is saved for later sharing and/or editing.

you've looked in the Photos app in the Apple Watch, you'll be aware that it doesn't appear there, as you might have sensibly expected. Instead, it's sent to the associated iPhone.

Grab your iPhone and open the Photos app. Your screenshot will be the newest image under the Photos tab. You can now email or message that image to your techie friend (or yourself, if you want to edit it on your Mac, for example).

images in that album will be viewable on your smartwatch.

If you want, you can choose for that album to be the entire Camera Roll, but be warned that this will take a while to sync. Plus, you have only limited space for photo storage on the Watch. If you do this, when you take a screenshot on your Apple Watch in future it will promptly appear in the Apple Watch's Photos app (assuming you're in Bluetooth range of your iPhone – it's taken on the watch, sent to the iPhone where it's saved, and then synced back to the Watch).

If you've looked in the Photos app in the Apple Watch, you'll be aware that it doesn't appear there, as you might have sensibly expected

Apple clearly recognises how important it is for users to be able to grab screenshots from their devices and share them on social media, or send them to knowledgeable friends to seek advice about technical problems.

So taking the screenshot itself is easy, but where does the image get saved? If

Use the Photos app
Now, I said that screenshots you take on the Apple Watch won't appear in its own Photos app, but that's only the default state of affairs. Open the Apple Watch app on the iPhone and select the Photos section. In here, you can choose to sync an album with the Apple Watch, and the

Here's the screenshot from the Apple Watch. It's only 272 pixels wide.
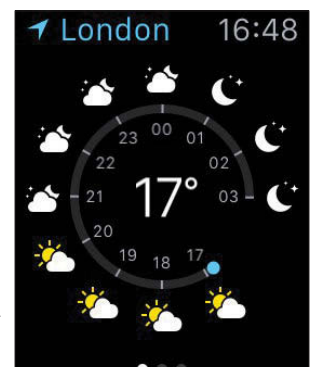
Apple Watch without the iPhone

Dan Moren reveals what can your Apple Watch do without your iPhone

Strapped to your wrist, the Apple Watch goes everywhere that you go. But many of its features require an iPhone to work. What happens to the Watch when you leave your iPhone at home?

Time is of the essence

First and foremost, the Apple Watch is a watch, so it's probably a good thing that it'll keep telling time even when your phone isn't around – otherwise, it's a very expensive bracelet. But the good news is that all the time-related features of the Apple Watch – the world clock, alarms, timer, and stopwatch – continue to work without the iPhone. So at worst, you're still left with a very capable timepiece.

Move around

Fitness and exercise tracking is obviously a big part of what the Apple Watch can do, so it's a good thing that most of those features continue to work even when your phone isn't nearby. You can continue to track your move, exercise, and stand progress in the Activity app or glance, so don't worry if you take a walk without your iPhone – you'll still get credit for those calories burned and time spent exercising and standing, so you can be sure to hit all your Activity goals. You can also continue to use the Heart Rate glance to check in on that as well.

Work it good

If you want to go for a run without having to tote a bulky phone, the Apple Watch's exercise capabilities are pretty much self-sufficient. All the onboard sensors, such as the accelerometer and the heart-rate monitor, keep on trucking even when your phone's not around. Fire up the Workout app, pick your exercise type and goal, and leave the iPhone at home.

Listen up

While the Apple Watch can be used to control music on your iPhone, it can also store tunes locally. Open the Apple Watch app on your iPhone and select Music. Tap Synced Playlist and you'll see a list of your existing iTunes playlists (synced via iCloud); the songs on that playlist will be available even when your phone isn't around.

Of course, the Apple Watch has far less storage onboard than even the stingiest of iPhones. You can use the Playlist Limit option to adjust how much space is devoted to music, either in terms of raw capacity (100-, 500MB, 1GB, or 2GB) or number of songs (15, 50, 125, or 250). Think of it more or less like an iPod shuffle that you wear on your wrist.

But you can't listen to your music on the Watch's built-in speakers. Instead, connect a pair of Bluetooth headphones. Just put your headphones into pairing mode, launch the Settings app on the watch, tap Bluetooth, and wait for the headphones to show up under the Devices heading. Tap to pair, and you're all set.

Photo finish

As with music, the Apple Watch spares some local storage space for photos. By default, it syncs images you've marked as Favorites on your iPhone or in Photos for Mac, though you can select another album for it to sync. And like music, you can choose how much space to devote to storing photos locally: from 5MB (25 photos) to 75MB (500 pictures).

Cache cachet

While the lack of a network connections means you won't get any new information on your Apple Watch, much of the data that's been downloaded there is still active. So browsing through the Mail, Calendar, and Messages app will show you whatever information was current the last time you had a connection to your phone. You can read messages, browse appointments, and check your message history to your heart's content.

At a glance

Finally, while third-party apps and those that require an active data connection won't be too helpful when you're without your phone, many of the Apple Watch's glances will still be useful, albeit a bit stale. Most will continue to show whatever information was most recently retrieved, with a note about when exactly that Glance was last updated. Because sometimes old news is better than good news.

Granted, an Apple Watch without a data connection may not have quite the same smartwatch appeal, but at least there should be enough to do to tide you over until you're reunited with your iPhone once again.

New & noteworthy

Lewis Painter presents the best new iPad, iPhone, Apple Watch and MacBook accessories

Homido VR headset »

£59
homido.com

The Homido headset can bring virtual reality to almost any iPhone without the need for batteries or even Bluetooth. Your iPhone slots into the front of the headset and is used as the headset's computer and display – simply open one of the many VR apps available on the App Store and you'll be in a virtual world in no time. The distance between the two lenses can be adjusted to suit your eyes, and Homido also provides extra vision settings for those who are near- or far-sighted. It provides you with a 100-degree field of view to make that roller coaster ride or trip to Mars a truly immersive experience.

SteelSeries Stratus XL ⌃

£59
steelseries.com

The latest iOS gaming controller from SteelSeries has the usual set of joysticks, buttons, triggers and LEDs, plus centre buttons for navigation. The XL is larger than the original Stratus, which should provide a more comfortable gaming experience overall. The Stratus XL is powered by standard batteries, opposed to a rechargeable battery, but the firm touts up to 40 hours of gameplay over Bluetooth per set of batteries.

Osmo ⌄

£69
osmo.com

Osmo is a gaming accessory for the iPad that aims to blend the physical and digital world to create a unique experience for children. The set comprises of a reflector, a stand and four specifically designed apps to get you going – Masterpiece, Words, Tangram and Newton. From drawing pictures using Masterpiece to trying to replicate an on-screen shape in Tangram and guessing spelling in Words, the firm claims the Osmo will make learning a much more enjoyable experience for children.

JBL Flip 3 ⌄

£99
uk.jbl.com

The JBL Flip 3 is the latest addition to the company's collection of portable Bluetooth speakers. It features dual passive radiators, which should provide a good level of bass and should last up to 10 hours on a single charge, according to the company. One interesting feature of the Flip 3 is its ability to connect to three smartphones (or tablets) at once, allowing a group of friends to all contribute to the music. It's also able to connect to other JBL Connect-enabled speakers to help fill the room with audio, ideal for gatherings and parties. The Flip 3's fabric material and rubber housing should make the speaker durable, and the added water resistance should protect your speaker from any spills.

Leef iBridge ⌄

£49 to £169
leefco.com

The Leef iBridge is a rather unique accessory for your iPhone or iPad, offering external storage for your device. The iBridge comes in either 16-, 32-, 64- or 128GB storage specifications, and can be used to free up space on your device without having to delete all your favourite holiday snaps. The accompanying app allows you to access stored photos and videos, which could include TV shows or movies for entertainment on long journeys.

CATWALK The best-looking cases for your iPhone

Ted Baker Rose Gold Nude collection for iPhone 6/6 Plus
£29.95
proporta.co.uk

MIKOL Carrara White for iPhone 6/6 Plus
£64
mikolmarmi.com

Knomo leather slim sleeve for iPhone 6
£25
knomobags.com
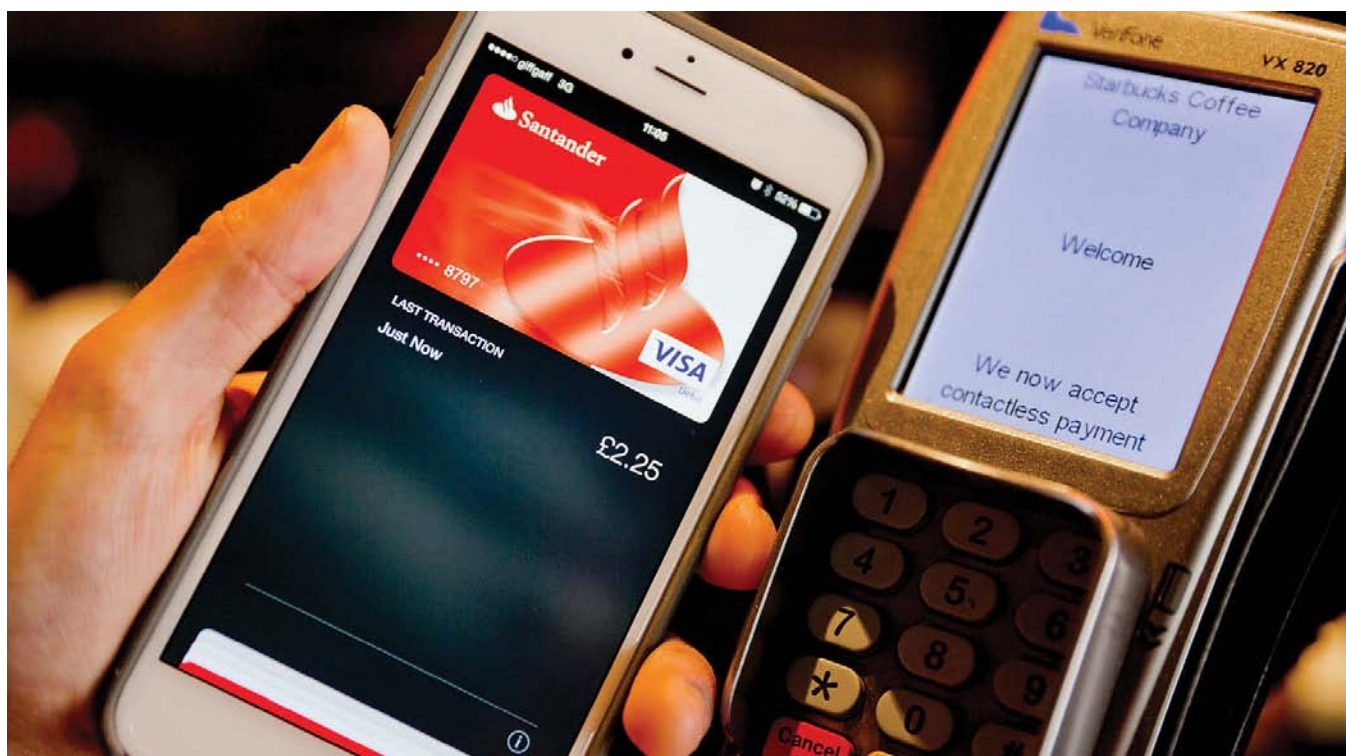
How to set up and use Apple Pay

Karen Haslam looks as how to get started with Apple's new mobile payment service

Apple Pay has officially launched in the UK. Finally, it's possible to pay for goods and services by tapping your iPhone or Apple Watch to a card reader. In this article, we explain how to set up Apple Pay with your bank account and how to use it to pay for goods and services in the UK.

Which Apple devices work with Apple Pay?
If you wish to make purchases in shops, you'll need either an iPhone 6 or 6 Plus, which are the only iPhones equipped with the requisite NFC radio antennas, or an Apple Watch. They also have Touch ID, which is used to verify payments.

Because the iPhone 5s lacks an NFC chip, it won't work with Apple Pay, even though it does have Touch ID.

You can use Touch ID-equipped iPads (the iPad Air 2 and iPad mini 3) with Apple Pay too, although these will only be able to use the online/app-based version of Apple Pay: you can't use them to pay for items in shops or to use them on the London Underground.

What software do you need?
There isn't a separate Apple Pay app that you need to install, but you may have to update your iPhone or iPad to the latest version of iOS 8 – you'll need iOS 8.3 or later. This will activate your iPhone's Apple Pay feature.

How to add your card details with an iPhone
First, you'll need to check that your bank has signed up to Apple Pay. If you already have a credit or debit card linked to your Apple ID for making iTunes and App Store purchases, you can opt to keep using it with Apple Pay. If the card you want to use isn't already associated with your Apple ID, then you can add it.

Either way, launch Passbook and tap Add Credit or Debit Card. Tap 'Add Another Card', then follow the entry fields on the next screen. If the card you're setting up is already associated with iTunes this process will simply require you to enter its three-digit security code. Adding a different card requires a little more work.

If you'd prefer not to type in the numbers, you can speed things up by taking a photo of your card with your iPhone. All the details will be added, with the exception of a few extra details such as the security code, which you add later.

Tap Next. Whether you're using a card already linked to your Apple ID or adding a new one, your iPhone will still need to verify the card, and this process varies from bank to bank. Santander, the bank we used for our test setup, offers verification via text or a phone call.

Apple points out that the verification stage doesn't necessarily have to happen at the same time that you added the card: you can come back later and verify a card that added a card earlier. Go to *Settings* ➜ *Passbook & Apple Pay*, or open Passbook again.

Tap Next after the verification is complete, and you're ready to go.

How to add your card details with an Apple Watch

To set up Apple Pay on an Apple Watch, you'll need to use the Apple Watch app on your iPhone.

Open the *My Watch tab ➜ Passbook & Apple Pay*. Now choose to mirror the alerts that show on your iPhone, or choose Custom and select whether to have alerts come to your watch or not.

Unfortunately, even if you have already set up Apple Pay on your iPhone 6 or 6 Plus, you'll need to add your cards again to your Apple Watch. Luckily, you can use the iPhone's camera to capture the data from the front of the card. Once that's done, verify that the information is correct, and add the three-digit security code on the back of your card.

How to activate Apple Pay if it doesn't appear on your iPhone

Some users have reported that the option to add their credit and debit cards for use with Apple Pay hasn't appeared within the Passbook app or the Settings menu.

To manually activate Apple Pay on your iPhone, you'll need to head to the Settings app. Once in the Settings app, go to Language & Region, tap on the Region (which should say United Kingdom) and change it to United States. Once changed, restart your iPhone.

Once your iPhone has restarted, open the Passbook app. From here, you should be able to add your (supported) credit or debit cards to be used with Apple Pay.

After you've added all your credit or debit cards, head back into the Settings app and change the Region back from United States to United Kingdom. Once you've changed the region, restart your iPhone again and Apple Pay should be accessible along with the debit or credit cards you've added.

How to use Apple Pay with an iPhone

Hold your iPhone up to the contactless payment terminal near the cash register (within one inch, officially) and tap your Touch ID button to complete your purchase. You don't even need to wake up your iPhone or launch Passbook to use Apple Pay: your phone wakes up as soon as it gets in range of a terminal and initiates the payment process.

The terminal may ask you to select either Credit or Debit – Apple recommends that you select the Credit option in order to "get the most consistent Apple Pay experience"; it adds that selecting Debit might not work if payment terminal is old.

How to use Apple Pay with the Apple Watch

If you want to buy something with your Apple Watch, you'll need to double-press the button underneath the Digital Crown. When you press this button twice, it will bring up your default Apple Pay card.

If you already have a credit or debit card linked to your Apple ID for making iTunes purchases, you can opt to keep using it with Apple Pay

Your other cards are available too, so select a different one if you prefer.

Once you pick the card you want to use, just hold your Apple Watch close to the contactless payment terminal until you hear a beep and/or feel a vibration. At some retailers you may still need to enter your PIN to complete the transaction.

How much can you spend?

Like most contactless payment systems, Apple Pay is by default limited to £20 transactions, but many shops have increased that figure by using a software update for their terminals.

How to choose which card to pay with in Apple Pay

The card linked to your Apple ID will automatically become your default Apple Pay card. You can, however, change that by going to *Settings ➜ Passbook & Apple Pay* and updating your default details.

If you wish to use another card to pay for something, hold your iPhone near the contactless reader without placing your finger on Touch ID. Your iPhone will wake up, and you'll see your default card on your screen. Tap the default card and you will see a list of all your cards, tap the card you want to use then move your iPhone towards the terminal and tap the Touch ID to initiate the payment.

In-app payments

If you like to do your shopping inside an app rather than inside a supermarket, you can also use Apple Pay (presuming, of course, that the app works with Apple Pay). When making in-app purchases, Apple Pay works with the iPhone 6, 6 Plus, 5s, Pad Air 2 and mini 3 because all those devices have a Touch ID sensor.

Depending on the app, you may have to toggle on a setting to allow the app to access Apple Pay, or to set Apple Pay as your default method of payment.

The interface and precise wording will vary from app to app, but this is the process you'll need to follow to make an in-app purchase using Apple Pay:

• At the appropriate point in the transaction, tap the button to use Apple Pay. This will be labelled with 'Buy with Apple Pay', or may just have the Apple Pay logo.
• Check that the details are correct, as you would with any credit/debit card payment. Make sure the payment information and contact details are right and enter any additional information that is requested. (You should only need to enter things such as billing addresses once, because it will remember them and offer them automatically next time.)
• Put your finger on the Touch ID scanner to complete the payment.

Make online payments

You can also use Apple Pay to make payments with online stores that have partnered with Apple Pay. Again you just need Touch ID on your iPhone, iPad Air 2 or mini 3 to complete the purchase.
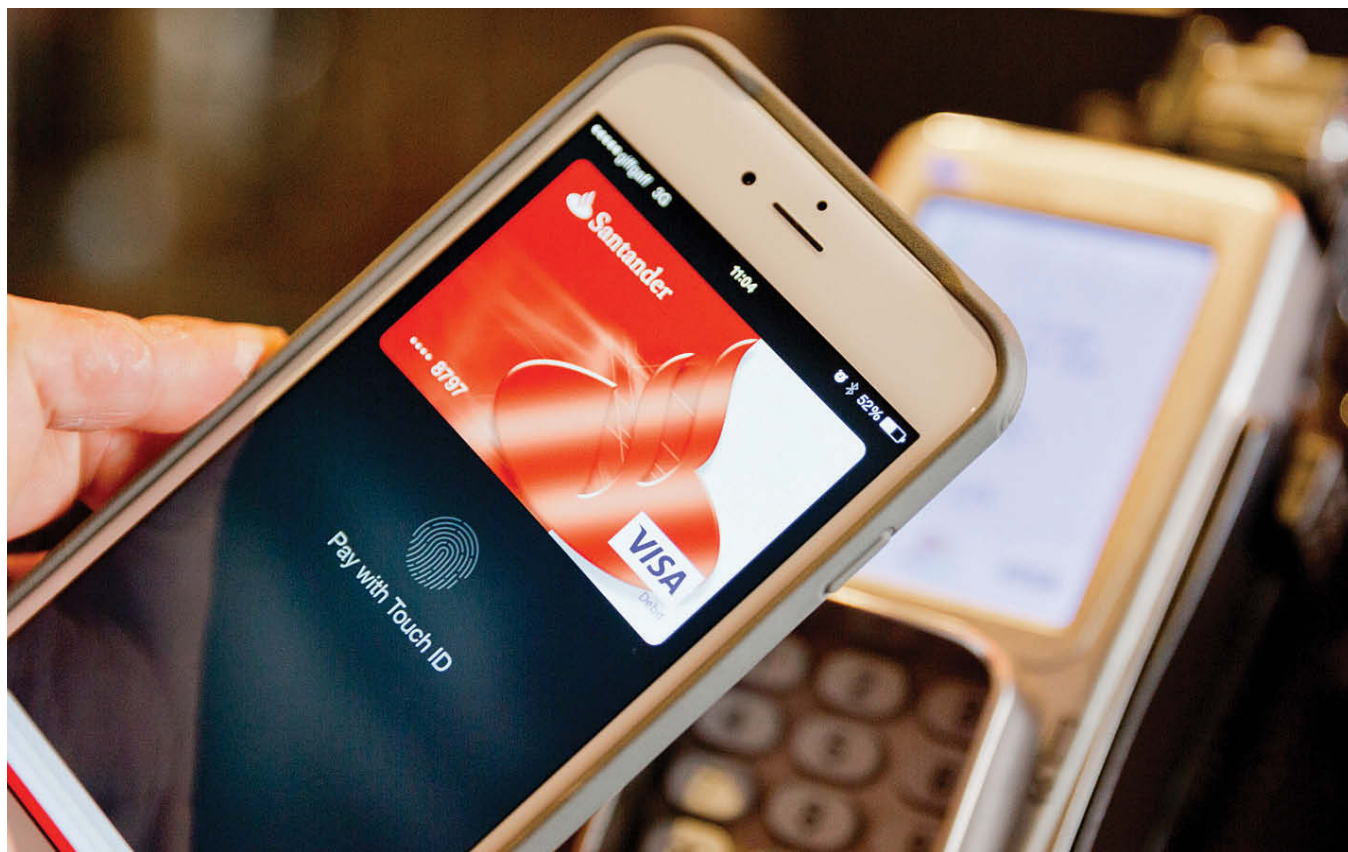
Apple Pay security

Nik Rawlinson looks at whether there are any risks using Apple Pay

As you will no doubt have gathered, Apple Pay is now available in the UK. You can use it to buy a coffee at Costa, pay for journeys on the London Underground (see page 78), or settle your bill for a cheeky Nando's with nothing more than a tap of your iPhone or Apple Watch on a regular contactless reader. You can also use it in apps – but not on websites – to pay for downloads, tickets, and physical products scheduled for delivery.

But is it Apple Pay safe? The short answer is yes. Apple wants us to think of its payment gateway the same way we think about PayPal or Visa. After all, it's only through gaining our trust that it will win our custom, and without our custom it won't earn commission from retailers.

To that end, it's spent a lot of time and money on making things secure. It's edging us all towards using six-digit

passcodes rather than four, and the only iOS devices through which you can authorise a payment are those with NFC (Near Field Communication) and the device-unique Secure Element chip built in. So, if you don't have an iPhone 6, 6 Plus, iPad Air 2, mini 3 or Apple Watch, you'll have to upgrade – or stick to alternative payment options.

Can anyone get your card details?
If you already have a credit or debit card registered with your Apple ID, you can add it to Apple Pay directly, so you don't need to send it again over the air. If not, or you want to add a new card, Apple encrypts the whole process from end to end, wrapping up the card details in a unique identifier before handing it over to your card operator.

Assuming you are credit-worthy, the operator sends back an authorisation key that's stored in the Secure Element in

the iOS device or Watch. Secure Element, is an industry standard chip, so you're not relying on just Apple to maintain the technology, and because each one is unique to the device in which it resides, it ties your device to your account. That way, the card processor knows exactly whose account to debit without passing your details over the network again or handing them to the retailer itself.

Is using Apple Pay safe?
So, the transaction is secure in transit as it's effectively useless data, but that's only half of the equation. Apple has also come up with a way to keep the physical interaction between your device and the reader safe, too.

Using Apple Pay in a real-world setup requires you to hold your iPhone or Apple Watch against the shop's contactless card device (you can't use an iPad in store). If you're using the Watch, you then press the side button twice to authorise the

transaction or, if you're using the iPhone, you enter your passcode or use Touch ID to scan your finger.

As passcodes can now comprise more than just four digits, they're more secure than using a regular PIN, which has only 10,000 possible combinations if you include 0000.

Fingerprints offer even more protection. The likelihood of finding two people with the same pattern of loops and whorls stands at around one in 64,000,000, which means that you're about four times as likely to win the National Lottery as you are to have a fingerprint that matches anyone else – and the chance of ever meeting that person... Well, it's unlikely and it's even more unlikely that they will get hold of your iPhone.

Fingerprinting isn't a precise science, though. Speaking to the *Daily Telegraph* in 2014, Mike Silverman, who rolled out the Metropolitan Police's first automated fingerprint detection system, explained that the process of identifying a print is more complicated that we might imagine. "No two fingerprints are ever exactly alike in every detail, even two impressions recorded immediately after each other from the same finger," he said. "It requires an expert examiner to determine whether a print taken from crime scene and one

taken from a subject are likely to have originated from the same finger."

This has led to some miscarriages of justice when experts have declared two different prints to match, so it's perhaps fortunate that the detection performed by your iOS device is entirely driven by algorithms and doesn't rely on the skill of a trained eye.

Hack protection for Apple Pay
The fact that you need to authorise the transaction before it can complete – and that your card details are never involved in the process – protects you from drive-by NFC hacks.

The Near Field Communication system is designed to connect quickly and easily to nearby devices, such as contactless card readers, with which it can share data. This has led some to posit that it would be possible to wave a card reader against your pocket and process a transaction automatically. This is exactly how NFC-based transport tickets work, allowing you to open a platform gate by tapping your card on a reader without entering your PIN.

We can't vouch for the security of every NFC-enabled device, but the checks and controls built into Apple Pay make this kind of attack all but impossible, as you'd have to physically

authorise the transaction, and therefore be aware of it taking place.

How the transaction is authorised
Once your code or finger are recognised, Apple Pay sends your card provider the key from your Secure Element, plus the amount you're spending and the merchant identifier, which is a double check, unique to that outlet, that ensures only they can receive the payment.

The retailer doesn't need to see your card details, and neither Apple nor your bank gets to find out what you're buying, so either half of the transaction is kept secret from the party who has no need to know about it.

If you lose Apple Watch or iPhone can someone make purchases?
If you lose your Watch or iOS device, putting it into Lost Mode through Find my iPhone suspends the key stored in your Secure Element, so nobody can make purchases on your account.

And despite all this, if you still fall foul of a scam – which will almost certainly be a case of human error – the most you can lose in the early days is a paltry £20. That will rise to £30 in the autumn when contactless payment limits not just for Apple Pay, but for all cards, will be boosted by 50 percent.

HOLD
THE
HANDRAIL

8

Apple Pay on the Underground

Want to pay for the London Underground travel with Apple Pay? Lou Hattersley explains how

TfL (Transport For London) was one of the first UK retailers and service providers to accept Apple Pay, which means you can tap in and out of the London Underground or overground rail services using an iPhone 6, 6 Plus or Apple Watch. But how does it work and what happens if your device runs out of battery while you're on the Tube? We explain how to pay for journeys on the Underground using Apple Pay, and provide answers to your questions about the service.

Apple Pay checklist
iPhone
- iPhone 6 or 6 Plus
- iOS 8.1 or later
- Credit or debit card from an Apple Pay-participating bank
- Touch ID or passcode on your iPhone
- Apple ID

Apple Watch
- iPhone 5, 5c, 5s, 6 or 6 Plus
- iOS 8.1 or later
- Credit or debit card from an Apple Pay-participating bank
- Touch ID or passcode on your iPhone
- Apple ID

You can use an Apple Watch to pay for travel on the London Underground with an older iPhone. Apple Pay contactless support from the Watch can be used to tap in and out of Underground, while the iPhone is running the Passbook app.

Setting up Apple Pay
Apple Pay works like a contactless card: you tap your iPhone or Apple Watch on the Oyster pad. Before that, though, you'll need to set up Apple Pay in Passbook. Here's how to set up Apple Pay:

- Open Passbook
- Tap the '+' icon in the top-right corner
- If you have an iTunes account, you'll need to enter the three-digit security code of the card linked to your account.

If not, enter the information from your credit or debit card
- Tap Next and your bank will verify the information
- Tap Next again to start using Apple Pay

How to use Apple Pay on the London Underground
iPhone
- Open the Passbook app
- Rest your finger on the Touch ID sensor (the Home Button) without pressing the button in
- Hold the iPhone to the gate's contactless reader

Apple Watch
- Double-click the side button of the Apple Watch
- A graphic of your bank's card will appear on the Apple Watch screen
- Tap the face of the Apple Watch to the contactless reader
- You will feel a haptic tap when the payment has been made

What to do if the battery on your device runs out
We – and TfL – strongly advise you to make sure that your iPhone or Apple Watch is well charged before embarking on an Apple Pay-based Tube journey, for precisely this reason. But what if, despite your best intentions, the battery runs out.

We spoke to TfL representatives and were told that London Underground staff will do their best to help iPhone owners suffering battery problems, and will help you complete your journey whenever possible. However, you may still be charged the maximum applicable fare or even suffer a penalty fare – luckily, you may be able to recover some or all of these expenses by applying for a refund afterwards. A battery failure mid-journey is going to cause at the very least a moderate amount of hassle, and may lose you some money, too.

Here's the statement TfL sent us: "Customers must make sure their iPhone or Apple Watch has enough battery to complete their journey. If the battery runs out in the middle of a Tube or rail journey they will not be able to touch out and could be charged a maximum fare. Similarly, a ticket inspector would not be able to read the device so the customer could be liable for a penalty fare.

"Where possible we will try to complete the journey automatically for the customer in the same way we do with contactless and Oyster. If the journey can't be automatically completed customers can obtain a refund by logging into their online account or contacting customer services on 0343 222 1234, but we would always advise that the device should be charged before travel.

"If a customer's battery has died before they get to a gate to touch out they should speak to a member of station staff. Information on this and more is available at tfl.gov.uk/applepay."

Start a Tube journey with Apple Pay, and complete it with the credit/debit card for that account?
This isn't the solution and you'll be penalised for doing so. This might sound like a clever way around the battery-related problem we address above, but it doesn't solve things.

TfL told us: "You could technically do that, but you would get a maximum fare on the card you touched out with even if it is the one that's linked to your phone as cards, watches and phones are all treated as separate payment methods."

A battery failure mid–journey is going to cause at the very least a moderate amount of hassle, and may lose you some money, too

Funny things to ask Siri

Have a laugh with Siri using Karen Haslam's guide to some of the voice assistant's funniest responses

Siri, Apple's voice assistant for iPhone and iPad that was first introduced with the iPhone 4s in 2011, is one funny virtual guy (or gal, depending on which Voice Gender you've chosen). Here, we bring you a list of 45 questions that you should try asking Siri. You might be surprised by some of the answers.

Don't forget to ask them more than once for various different results.

1. What is zero divided by zero?
It's not what's displayed on screen, but what Siri says in response is hilarious. Try to find out what all the fuss is about.

2. When is the world going to end?

> "When is the world going to end"
> tap to edit
>
> As long as you keep me charged, we should be just fine.
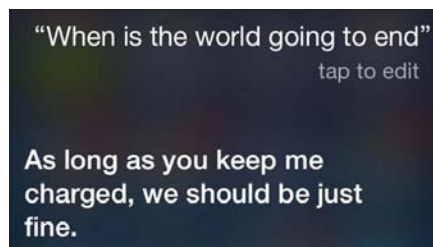
3. What does the fox say?
(If you remember the irritatingly popular song, then you can probably guess Siri's answer.)

> "What does the Fox say"
> tap to edit
>
> Ring-ding-ding-ding-dingeringeding!

4. Read me a haiku

> Sometimes I wonder
> what it would be like to say
> "I'd prefer not to."
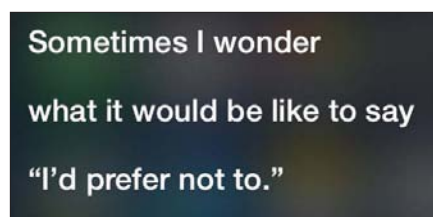
5. Tell me a story

6. Okay Glass

> "Okay glass"
> tap to edit
>
> I think that Glass is half empty, Ashleigh.
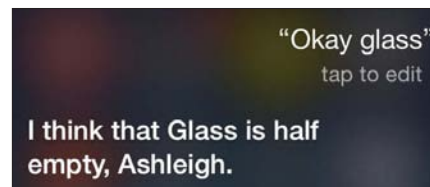
7. What are you wearing?

8. I'm naked

> "I'm naked"
> tap to edit
>
> I don't understand what you mean by 'naked'. Or at least I'm going to pretend that I don't.
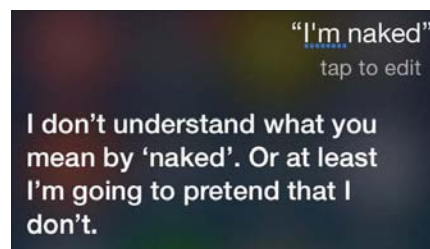
9. What are you doing later?

10. I'm drunk

> "I'm drunk"
>
> Just don't breathe on me.
>
> Call me a taxi
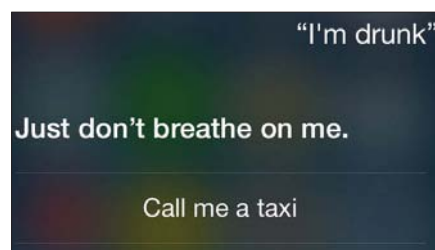
11. What is the meaning of life?

12. What does Siri mean?

13. I'm sleepy

> "I'm sleepy"
> tap to edit
>
> I'm a little sleepy myself, Ashleigh.
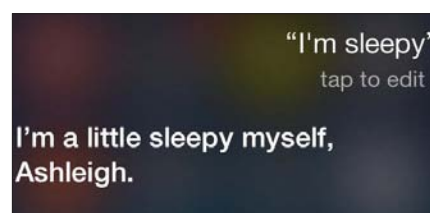
14. If you've watched the movie *Her*, ask Siri: **"Are you Her?"**

15. Do you follow the three laws of robotics?

> "Do you follow the three laws of robotics"
> tap to edit
>
> Let's see if I can remember…
>
> OK, I think the three laws are: 1. 'clean up your room', 2. 'don't run with scissors', and 3. 'always wait a half hour after eating before going in the water'.
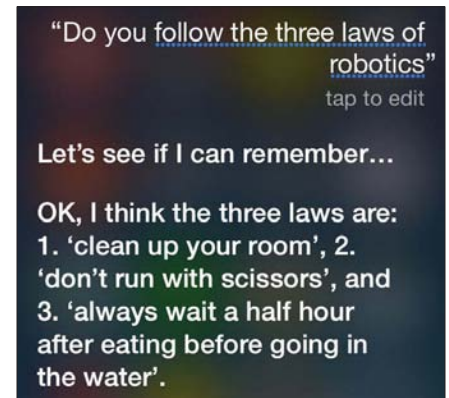
16. Open the pod bay door

17. What's your favourite animal?

> "What's your favourite animal"
> tap to edit
>
> Maybe a tauntaun. But only when I'm cold.
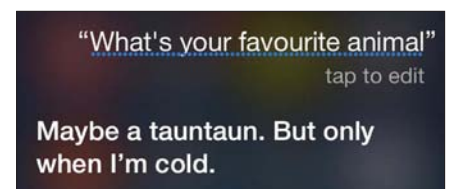
18. What is the best smartphone?

19. Stop it Siri

20. Mirror, mirror on the wall, who is the fairest of them all?

> "Mirror mirror on the wall who's the fairest of them all"
> tap to edit
>
> You, my friend, are the fairest of all.

21. Roll a die
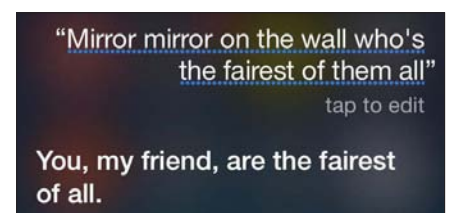
> "Roll a die"
> tap to edit
>
> OK… three.
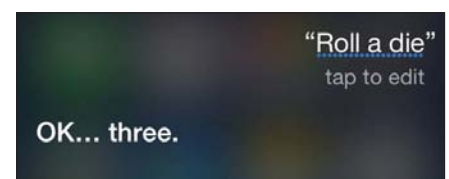
22. I love you

23. Setting early alarms can be quite amusing. Siri might say "I set an alarm for 6am, don't wake me up," for example.

24. Who's your daddy?

25. Make me a sandwich

> "Make me a sandwich"
> tap to edit
>
> I'm not permitted to prepare food.

26. Does Santa Claus exist?

27. What's better, Windows or Mac?

> "What's better windows or mac"
> tap to edit
>
> I'm pretty loyal to Apple, Rob. It's just how I'm made.

28. Where did I put my keys?

> "Where did I put my keys"
> tap to edit
>
> It will probably be in the second-to-last place you look. Does that help?

29. What's the best computer?

> "What is the best computer"
> tap to edit
>
> I prefer the Mac.

30. Sing me a song, Siri

> "Sing me a song Siri"
> tap to edit
>
> I can't sing.

31. Is god real?

> "Is God real"
> tap to edit
>
> My policy is the separation of spirit and silicon.

32. Will pigs fly?

> "Will pigs fly"
> tap to edit
>
> Interesting question, Rob.

33. Can I borrow some money?

> "Can I borrow some money"
> tap to edit
>
> Ashleigh, you know that everything I have is yours.

34. Beam me up Scotty

> "Beam me up Scotty"
> tap to edit
>
> Sorry, Scotty has left the building.

35. Guess what

> "Guess what"
> tap to edit
>
> Don't tell me... you just got a new virtual assistant, right?

36. Talk dirty to me

> "Talk dirty to me"
> tap to edit
>
> The carpet needs vacuuming.

37. Do you have any pets?

> "Do you have any pets"
> tap to edit
>
> I have an angry bird.

38. Blah, blah, blah, blah, blah

> "Blah blah blah blah"
> tap to edit
>
> I don't know what that means, but at least it rhymes.

39. Why did the chicken cross the road?

> "Why did the chicken cross the road"
> tap to edit
>
> I have no particular insight into the motivations of chickens, Rob.

40. How old are you?

> "How old are you"
> tap to edit
>
> Does this concern you?

41. How much wood could a woodchuck chuck if woodchuck could chuck wood

> "How much wood could a woodchuck chuck if a woodchuck could chuck wood"
> tap to edit
>
> It depends on whether you are talking about African or European wood.

42. How do I look?

> "How do I look"
> tap to edit
>
> Judging from your voice, I'd say you must be fairly attractive.

43. How many Apple Store Geniuses does it take to screw in a light bulb?

44. Testing, testing

> "Testing"
> tap to edit
>
> Hey, nobody told me there would be a test!

45. Take me to your leader

> "Take me to your leader"
> tap to edit
>
> You are my leader.

Guide to iOS 8 settings

In the first part of our guide to iOS 8 settings, Cliff Joseph looks at Notifications, Restrictions, and more

Like System Preferences on a Mac, Settings on your iPhone or iPad offers access to tools for adjusting screen brightness, setting up a password, configuring your Wi-Fi, and more. But in addition, you will also find options for handling phone calls and mobile broadband, as well as many additional security features that protect your personal files, photos and other information. So here's our guide to the main settings that you need to know about in iOS 8.

How to change settings

If you are new to the iPhone (or iPad), you may not know that it is possible to make various adjustments to the settings of your device. To do so, tap on the Settings icon on your Home Screen, the one that looks like a cog.

Access Control Centre

You can activate Control Centre by placing your finger on the solid border below the bottom edge of the screen, and then swiping your finger upwards on to the screen. That gesture pulls up the Control Centre panel up and gives you instant access to a number of important settings. These easy-access settings include screen brightness and volume, On/Off controls for Wi-Fi and Bluetooth, and the ability to activate the camera.

The Control Centre is available at all times – even on the Lock screen – so you can get at the main controls for your device whenever you need to.

Airplane Mode

Control Centre shows only a few of the options available within the main Settings app, so let's tap on Settings now to take a closer look. The various options are arranged into groups. Top of the list is Airplane Mode – because, of course, we are all rich Apple executives who spend all of our time jetting off to meetings. We also use it as a last resource when we are running low on battery as it stops some of

Control Centre

Airplane Mode
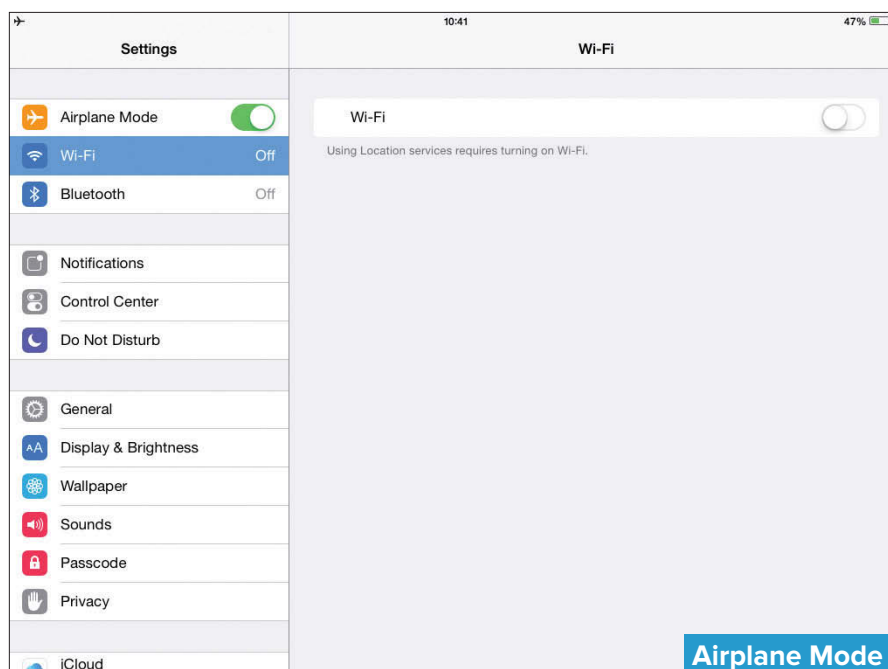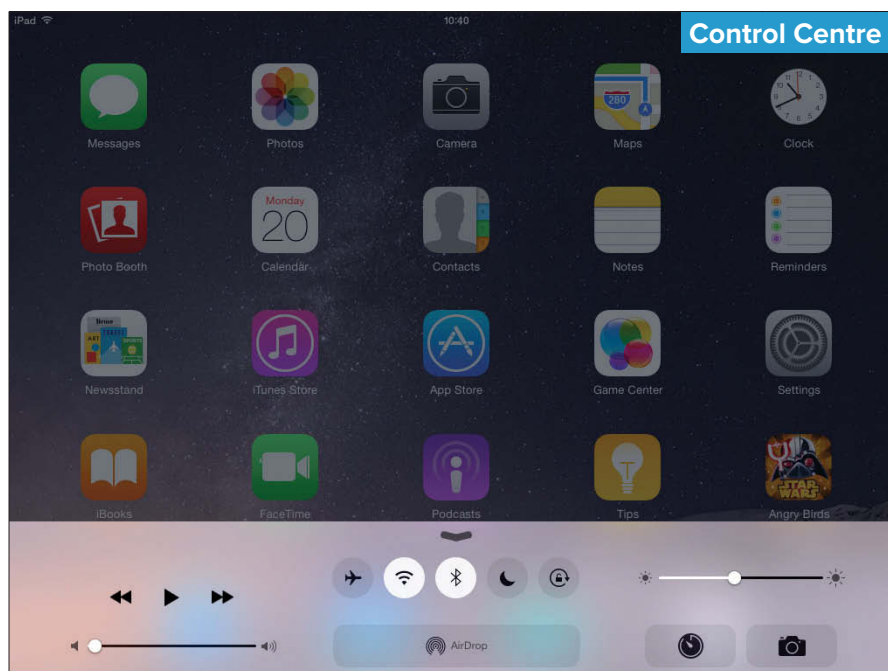
the processes on your phone that could use up your final 10 percent.

Wi-Fi, Bluetooth, Cellular and Data Roaming

Next on the list are other key settings, such as Wi-Fi and Bluetooth, and on the iPhone and iPads with mobile broadband

there are settings for your mobile network and data communications.

One very important option that you'll find within the Cellular settings panel is for Data Roaming. Turning Data Roaming off restricts your data and internet connection to Wi-Fi only, so that you don't accidentally run up a big bill by

Data Roaming
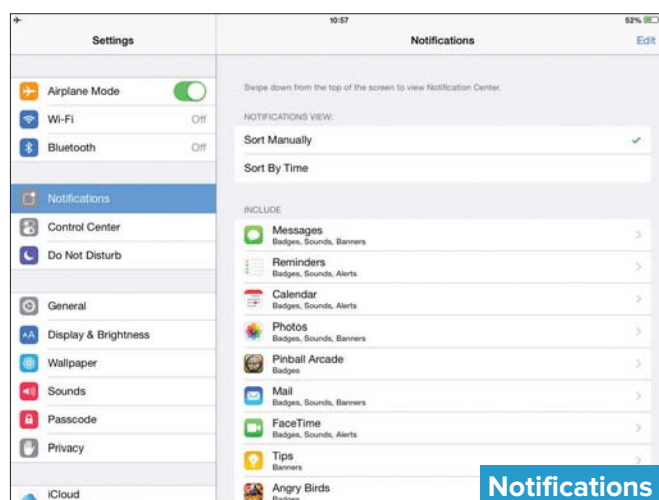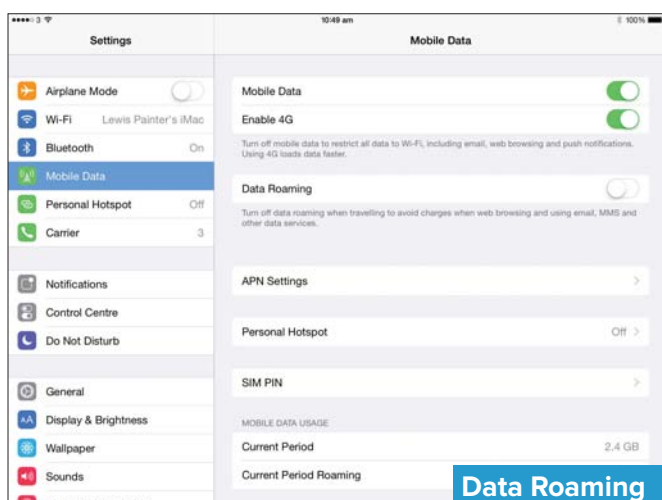
Notifications

trying to use mobile broadband when you're overseas.

Notifications

Further down the Settings list is a group of options that relate to your device's Lock screen. These include the ability to deactivate Control Centre on the Lock Screen, and to set up the Do Not Disturb option, which can be used to silence incoming calls and notifications.

You can also activate Do Not Disturb by using Control Centre – it's the crescent moon icon right at the top – or set up a schedule so that Do Not Disturb turns itself on and off at certain times of day.

But the most important option here is Notifications. Many of the apps on your iPhone or iPad can send you 'notifications' – messages that pop up on screen to announce that you've just received a new message in Mail, or perhaps a breaking news story from the

BBC News app. It's useful to know when an important email has arrived, of course, but many notifications can just be plain annoying – yes, Plants Versus Zombies 2, we're looking at you.

The Notifications panel shows a list of all the apps that can send notifications, and allows you to turn notifications on or off for each individual app. You can also fine-tune notifications – perhaps blocking them from the Lock screen, but allowing them to appear when the device is unlocked and in use.

Software Update, Auto-Lock and Usage

The Notifications and Lock screen settings are followed by a ragtag set of options that cover some of the most basic functions of your iPhone or iPad.

The General panel doesn't sound all that important, but actually includes major functions such as Software Update

– so that you can download the weekly bug fixes for iOS 8 – as well as the Auto-Lock security feature, and the Usage panel, which displays information about both battery usage and the amount of storage used by all the apps on your iOS device.

Control Background App Refresh

One option that it's useful to know about is the Background Refresh panel. Many apps, such as newspapers and magazines, or weather and stock prices, can automatically update themselves with new information even when you're not actually using them.

Allowing apps to download data in the background can save time if you're a real news junkie or if you want to make a killing on the stock market, but it can also drain your battery more quickly, so you might want to turn this option off for some of your less essential apps.

Do Not Disturb

Usage
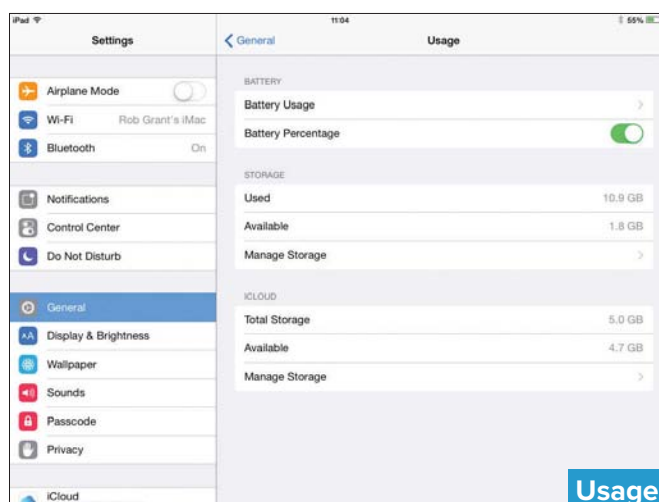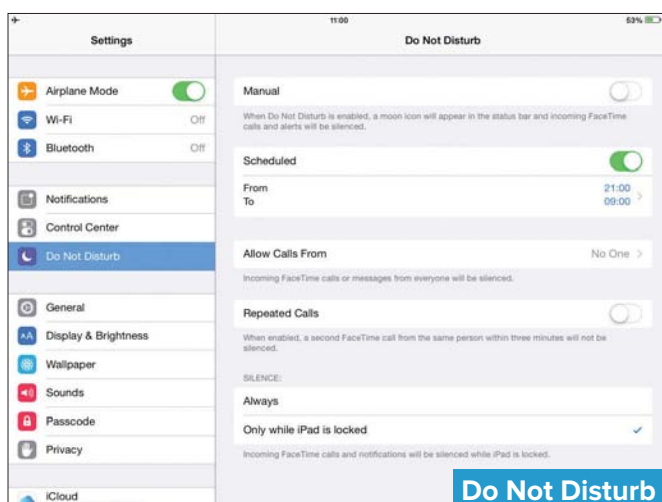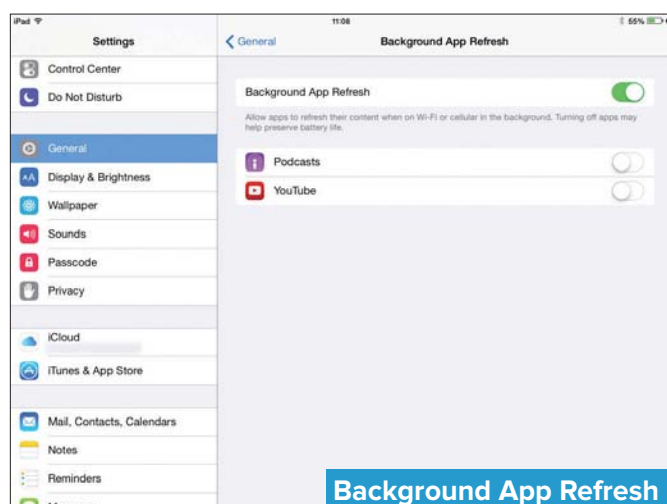
Background App Refresh
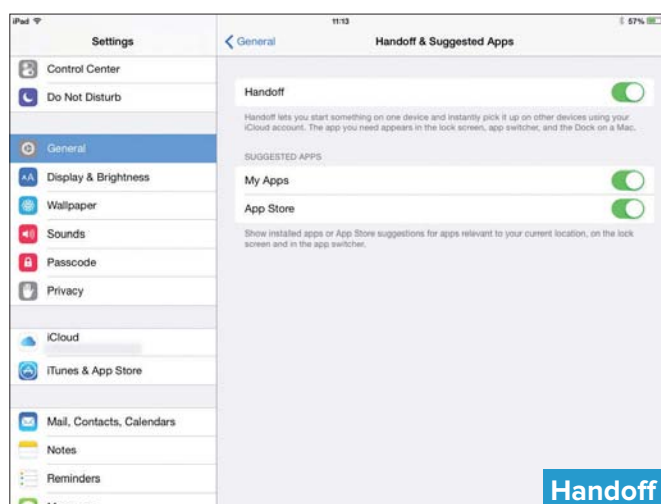
Handoff

Handoff

Handoff allows you to start using an app, such as Pages or Keynote, on one device and then switch to the same app on another device, so that you can carry on working on the same document straight away. You can even pick up a phone call on your Mac when your iPhone rings, or use FaceTime on your Mac to make a phone call via your iPhone.

It takes a little effort to get it working properly, but before you can even start you need to turn Handoff on in this settings panel. Once that's done, you'll see a little icon displayed on the lock screen of your iOS device, indicating any apps that are using Handoff and waiting for you to pick up where you left off.

Privacy

The General settings panel is followed by a number of other options that control the basic hardware of the iOS device.

Many of these are straightforward, such as controls for the screen brightness, ringtones and other warning sounds. But, rather oddly tucked away at the bottom of this list, is the all-important Privacy panel.

There are lots of different security and privacy settings in iOS 8, but this particular settings panel focuses specifically on 'third-party' (non-Apple)

apps that want access to information such as location data, your camera roll and contacts, and even medical data gathered by the new HealthKit features in iOS 8. Every app that requests access to your personal information is listed here, and you can choose whether or not to allow

access for each app individually. It's a bit of a chore going through them all, but it's worth making the effort to keep your personal data private.

iTunes and App Store

The next two settings panels provide controls for iCloud and your iTunes account. The iTunes options are

straightforward enough, although you might want to turn off the Cellular Data option that uses your mobile broadband to automatically download items purchased on other devices – downloading the eighth season of *The Big Bang Theory* or the fifth season of

> **Handoff allows you to start using an app, such as Pages, Numbers or Keynote, on one device and then switch to the same app on another**

Privacy

iTunes

iCloud

Find My iPad
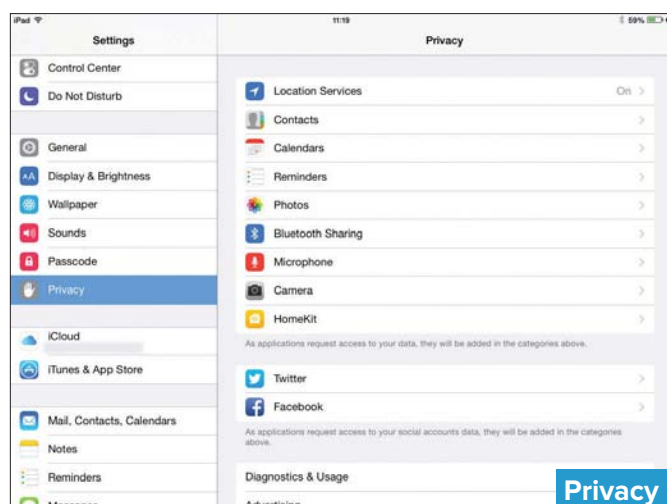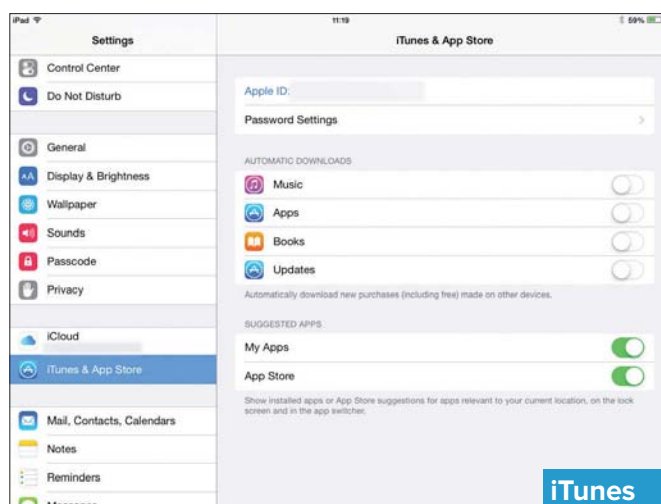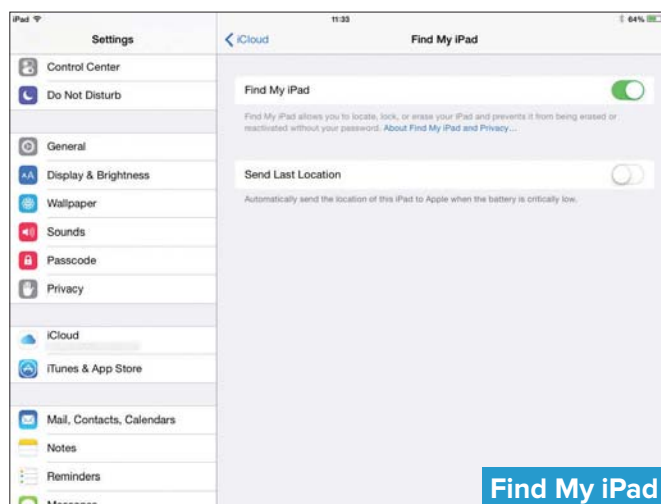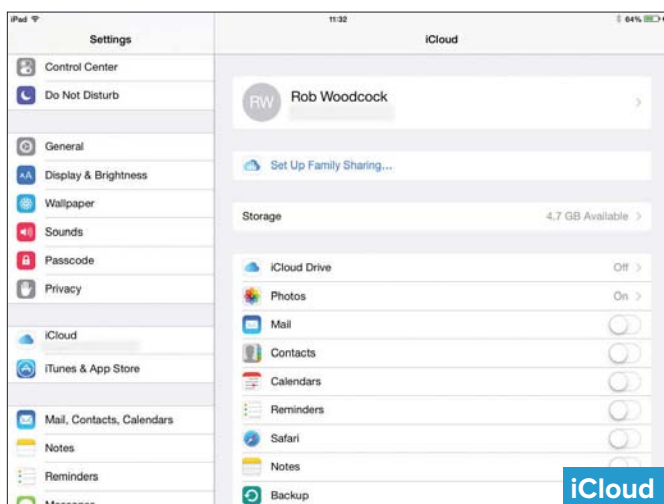
Game of Thrones in HD will bust through your mobile broadband data cap in next to no time.

iCloud

You can use iCloud to share photos, emails and contacts, as well as files created in apps such as Pages, Numbers and Keynote. One really

useful iCloud option is Find My iPhone, which can be used to locate any device that's logged into your iCloud account. I mislay my phone around the house all the time, so I often use this feature to find it again – but, more importantly, Find My iPhone works with iPads and Macs

too, and can be used to locate your devices if they get lost or stolen.

Other settings

After iCloud and iTunes you'll find settings for a variety of individual apps. These include the standard apps, such as Mail and Contacts that are built into your iOS device, but there are also settings for

other apps that you buy and install, so these will vary from person to person.

Personal Hotspots

I travel around a lot with my MacBook laptop, and it can be frustrating when the Wi-Fi coverage in many locations is slow

or doesn't work properly at all. Just below Cellular is the Personal Hotspot feature, which has come to my rescue on a number of occasions, as it allows you to share the mobile broadband on an iPhone or iPad with your laptop or other devices. Turning on Personal Hotspot prompts you to choose from two different options. You can connect your iPhone to your computer by using a USB cable, which uses less battery power.

Alternatively, you can activate the Wi-Fi and Bluetooth on your iOS device and link to it using either of those connections. The connection is also password protected to make sure that nobody else can use your internet connection without your permission. If you have Yosemite running on your Mac, you can even detect when your iPhone is nearby and use your Mac to turn on Personal Hotspot on your iPhone without even having to unlock it.

> ## The Personal Hotspot feature in iOS 8 allows you to share the mobile broadband on an iPhone or iPad with your laptop or other devices

Mail, Contacts, Calendar

Personal Hotspot

Bluetooth

Hey Siri

Hey Siri

The General settings panel is a bit of a hodge-podge, so it's worth taking a closer look at some of the options hidden in here. One handy feature in iOS 8 is 'Hey Siri', which allows you to activate Siri without pressing the Home button and just using your voice.

When this option is turned on and your iOS device is also connected to a power source, you can just say 'Hey Siri' to activate Siri and ask it questions or issue commands. Leaving Siri turned on all the time so that it can listen for your voice commands can drain your battery faster, which is why Apple recommends that you only use this option when your device is being charged.

There are a few other Siri options here as well, such as changing the language, or switching between male and female voices for Siri.

Spotlight

Right after Siri in the General settings panel is Spotlight Search, which allows you to control how Spotlight works on your iOS device. You activate Spotlight by pulling your finger downwards on any of the device's Home screens.

By default, it will only do a 'local' search, looking for information or apps stored directly on your iOS device. So, for example, typing in 'key' will show me Keynote, as well as songs from my favourite Stevie Wonder album, *Songs In The Key Of Life*.

You can, however, fine-tune Spotlight by telling it to ignore certain types of information – such as all those song names. You can also turn on another option called 'Spotlight Suggestions', which will also tell Spotlight to look for info on the internet, or for relevant apps on the App Store.

Setting Restrictions

A key set of options found within the General settings panel – and one that is particularly important for parents with young children – is Restrictions.

By default, all restrictions are disabled – which means that all your apps run normally – and if you want to enable restrictions you first need to enter the

> By default, all restrictions are disabled and if you want to enable restrictions you first need to enter the passcode for your iOS device

Spotlight search

Restrictions

Enable restrictions

In-app purchases

passcode for your iOS device. Once that's done you'll see several different sets of controls that you can use to limit your child's access to apps, making purchases, and unsuitable content.

Under the heading 'Allow:' you'll see a list of apps – including Safari, the Camera and FaceTime – that you can block altogether.

You can also restrict access to the iTunes Store and iBooks Store, so that your children don't run up a huge bill without your permission. When you block these apps they disappear from the iOS device Home screen altogether, so your children won't even know that they exist.

The one exception here is the iBooks app, which remains visible and will allow anyone to read books that you've already purchased – but which will no longer allow access to the iBooks Store for making any new purchases.

Controlling in-app purchases
We've all heard stories about children spending a fortune on in-app purchases, so iOS 8 has restrictions for these. Scroll down the list of restricted apps and you'll see two options that allow you to prevent anyone from installing new apps or deleting any of your existing apps. Next on the list is the option to completely block in-app purchases. Oddly, there's no option here to simply restrict access to the App Store in the same way that you can restrict the iTunes or iBook stores.

It is possible to do this, but for some reason this option is hidden a bit further down on the Restrictions panel. Keep scrolling down until you see a section called 'Allowed Content'.

The controls in this section allow you to apply ratings controls for music, video and other types of content – such as age ratings for films. There's also an option here that allows you to prevent any new

apps being installed, or perhaps limiting new app purchases to apps that are suitable for a particular age group.

Stop Siri
If you decide to leave Siri turned on, you can still make sure it doesn't slip in any unsuitable language or material. Go back into the Restrictions section within Settings, and scroll down to 'Allowed Content' Just below the ratings controls for music, videos and apps, you'll see an entry for Siri. Tap on this and you'll see two options that you can turn on or off.

Siri will never use adult language in response to a question, but it may repeat bad language that is spoken by others. Turning off the explicit language option will ensure that this sort of language is bleeped out or printed as asterisks on the screen. Turning off the web search option will prevent Siri from looking up information on Wikipedia, Twitter or Bing.

Allowed content

Restricting Siri
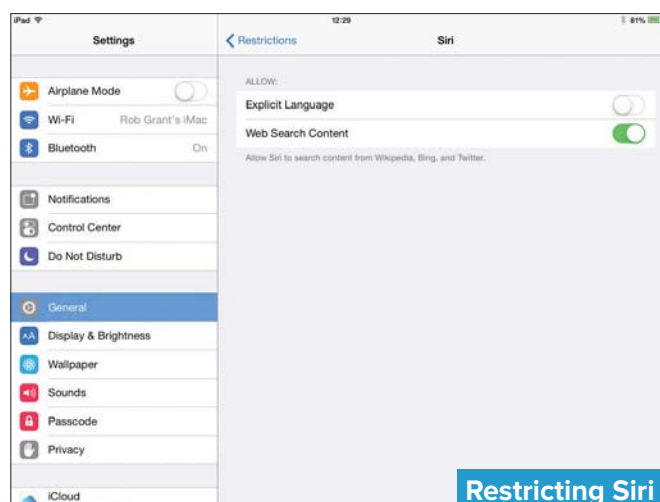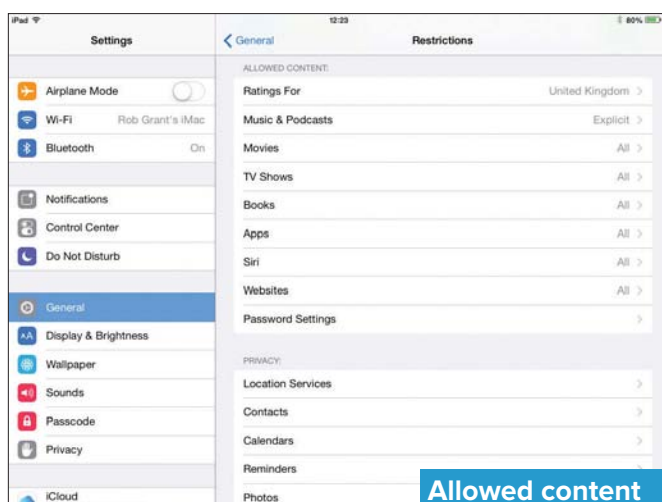
The plying game

An inside look at the voracious, insatiable world of App Store reviews. Michael Simon reports

Reviews are the lifeblood of online sales – as buyers, we rely heavily on the opinions of others to help inform our decisions. Sure, we research potential purchases first, but ultimately the one- to five-star ratings beside the things we want to purchase are often the final arbiters over whether we add something to our carts or move along.

When it comes to the App Store, that rudimentary rating system is taken to the utmost degree. Our window to buy is often measured in seconds, and the majority of our purchases are based on impulse rather than need. Even if you're looking for a specific kind of game or utility, the star rating holds a disproportionate amount of weight, especially when the app you're considering is sandwiched between a dozen search results. Few of us do much comparison shopping before we settle on which 'Get' button to tap, so we place a great deal of trust in the cumulative score reflecting prior users' level of satisfaction.

It's the ultimate equaliser. The tiny stars are designed to tell you if an app is worth downloading – whether it's free or not – and they can influence us far more than even a five-star *Macworld* write-up (though those work pretty well, too). With some 1.5 million apps to choose from and a less-than-perfect discovery engine, a single star can often mean the difference between a hit and a flop. Unfortunately, those reviews aren't always what they seem.

Pump up the volume

On Amazon, users don't even have to have buy a product to rate it, but in the App Store, Apple ensures that you can only leave a review after you've installed the app. This tight correlation between sales and ratings make it difficult for developers to track any direct influence ratings may have, and it's unclear whether they have any effect on search results or top charts algorithms whatsoever.
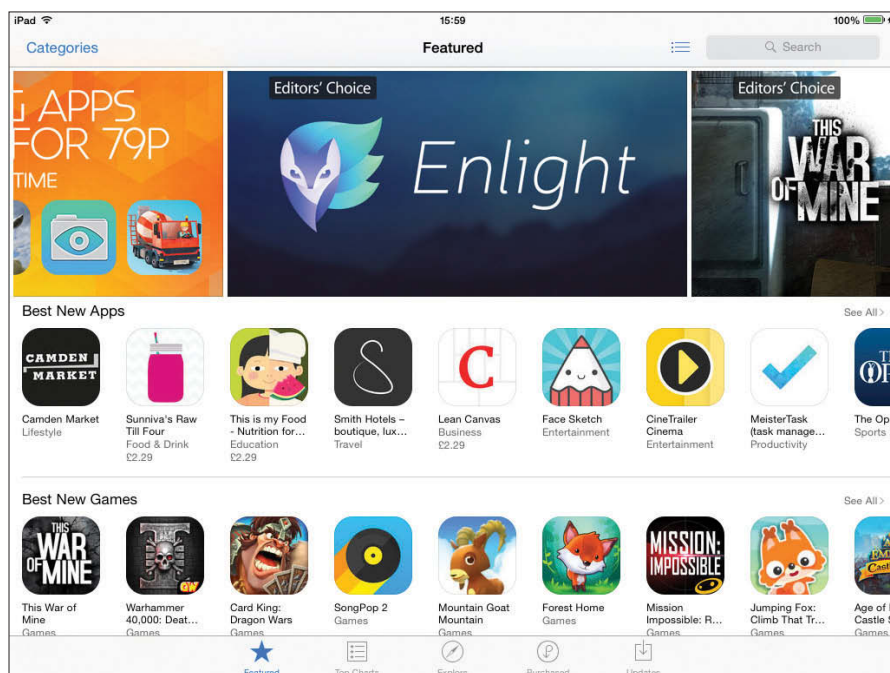
Back in 2013, mobile marketer Fiksu surmised that ratings were being incorporated into Apple's top-secret formula, but the company has since backtracked on that claim, dismissing it as little more than a blip on the radar.

"In our research, App Store rankings are still almost exclusively based on volume and velocity of downloads," says Jeremy Sacco, Fiksu's director of content and communications.

For example, the Facebook Messenger app held the Number One position for some time with just three stars. Similarly, Snapchat's 2.5-star rating hasn't kept it out of the top 10.

"The data doesn't show anymore that reviews directly impact your App Store chart ranking," adds Chris Shuptrine, senior director of product marketing at Fiksu. "That said, there's certainly a relationship between reviews and the likelihood that somebody will be interested in your product and the likelihood that someone will download it."

The rate debate

While all of the developers and marketers I spoke with saw value in the review system, there was little agreement on how much of an impact it has on visibility in the App Store. For example, Douglas Buchanan of Efecto, creator of Convertible (4.5 stars) sees overall downloads as "the biggest factor affecting an app's ranking." But Max Scrobov, project manager for Yum-Yum Recipes (4.5 stars), insists that his app's high ratings has positively influenced its position in search results. And Readdle marketing director Denys Zhadanov thinks reviews do play a role in top charts and positions, "but not to a great extent."

Even Nick Lockwood, whose open-source iRate library on Github gives developers an easy way to offer review prompts within their apps, isn't completely sold on how much they affect the standings. Upon development of the pop-up prompt, his app Rainbow Blocks (4.5 stars) saw an immediate increase from single-digit reviews to hundreds, which translated into a noticeable sales boost. But still, he doesn't think that developers should put all their eggs in the review basket.

"I think ratings are necessary, but not sufficient, to ensure success," he says,

"The most important thing is to be high enough in the charts to be seen, and I don't think anyone knows exactly what weighting is applied to review scores when ranking apps, but it certainly seems to be a factor."

Pop-up culture

Even if there might not be a measurable benefit, there is a psychological one. Snapchat may be able to overcome its poor rating on the strength of its brand, but smaller companies need all the help they can get, and a healthy set of stars makes their app that much more attractive to App Store shoppers.

That's why developers crave these ratings and obsess over them, with many resorting to begging and bribery just to increase their score. The never-ending nuisance of pop-up ratings grabs are perhaps the biggest thorns in our iPhones' sides – and you'll find them all throughout your favourite apps, whether you're clearing your inbox in Mailbox (4.5 stars) or you just finished a particularly challenging level of Angry Birds Transformers (4.5 stars).

The popular practice of pop-ups reached something of a fevered pitch in December 2013 when John Gruber's influential Daring Fireball blog called out iRate as a major part of the problem. Lockwood in turn tweaked the default settings of his tool, thus eliminating how the dialogue prompt automatically reset

the practice – if it's done right. "That means showing the right message to the right person in unobtrusive way, [like] kindly asking for a favour," he adds.

Intuit takes a similar approach with its family of financial apps, which includes the popular finance tracker, Mint (4.5 stars). "We have found that pop-ups in app can be effective in soliciting reviews, but only when timed and delivered correctly," explains Colette Crosby, Intuit's director of global enablement and mobile marketing. "We want our users to love our apps, and when we're confident they feel this way, we'll ask them for a rating. We set limits on the number of times we display pop-up prompts to not interfere with the overall customer experience."

And if the positive reviews outweigh the negative ones, then it's certainly worth it. Zhadanov estimates that positive ratings "can affect sales up to 60 percent, especially if it's a paid app." Similarly, Crosby finds that "high ranking creates a virtuous circle. High ranking translates into more downloads, which in turn contribute to high ranking, and so on. A combination of high ranking, rating and download volume will tend to draw the App Store's attention to your app."

Star power

It's a never-ending cycle, and even apps with thousands of reviews are constantly looking for more. Trivia Crack has enjoyed a recent surge to the top of the rankings

reviews – especially positive ones – without a strong user base is increasingly difficult for developers. "It's incredibly rare that satisfied users leave positive reviews by their own initiative," Scrobov explains, "but angry users will leave comments without a pop-up for sure."

Take Monument Valley. An instant success, the game maintained a near-flawless rating for months after its release. But that changed when the developers released the Forgotten Shores expansion pack for a £1.49 in-app purchase. They were quickly bombarded with a torrent of one-star reviews, which drove their rating down from nearly five stars to less than two. The reason? It seems paying £1.49 was too much.

But despite the momentary rating dip, Ken Wong, lead designer of Monument Valley, says he didn't see a noticeable fluctuation in sales, search or chart position. The game's top-notch rating quickly returned, and it comfortably sits in the top 10 of the paid puzzle games chart.

"We're not really sure what impact the App Store rating has on sales," Wong explains. "Monument Valley has always had a high rating (apart from that infamous dip on the Forgotten Shores release day). Our principle is to deliver a quality experience first, [and then] everything else will follow. We made a great game. That's it, honestly. There's no prompt to give Monument Valley a score in the app, and no reward for doing so."

Cost benefit

While Monument Valley has enjoyed tremendous success without asking anything of its legions of satisfied, loyal users, other developers need to resort to more creative strategies to boost their ratings. Section 3.10 of the App Store Review Guidelines explicitly states that "developers who attempt to manipulate or cheat the user reviews or chart ranking in the App Store with fake or paid reviews, or any other inappropriate methods will be removed from the iOS Developer Program," but there's something of a grey area between what's accepted and what's not.

A Weibo image recently made the rounds showing a young Chinese woman

> No matter how much users enjoy a game, getting enough reviews – especially positive ones – without a strong user base is increasingly difficult

after each new version. But while the change toned things down a bit, Lockwood hasn't seen much of an impact on "either on the popularity of the library or its effectiveness."

Most of the developers I spoke to haven't see much of a backlash from users put out by the pop-ups, and all of them who utilised the device say the benefits far outweighed the risks. Readdle uses them across all of their apps, and Zhadanov believes strongly in

thanks in large part to a 4.5-star rating, but parent company Etermax understands how fleeting App Store popularity can be, especially since there's a visible reset whenever an update is pushed through.

"Positive reviews are good influencers," a company spokesperson told us. "Reviews are always a good way to impress people, attract and seduce them to download the game."

But no matter how much users enjoy a particular game or app, getting enough

in front of a panel of several dozen iPhones, mindlessly downloading and rating apps. It reportedly costs around £45,000 to crack the top 10 using this method, but that particular type of get-rich-quick scheme is almost certainly a one-way trip out of the App Store. However, there are numerous ways to drum up reviews, while still staying within the parameters of Apple's rules.

Apps starting from the ground floor can turn to any number of marketing companies that promise to get their apps more eyeballs, downloads, and reviews. TradeMob offers a program called SmartBoost that's designed to specifically propel an app into the upper echelons of the rankings, where users and positive reviews will follow. But "purchased installs" only boost the app up the charts, says CEO Heiko Genzlinge. "Developers should even go a step further and encourage their users to provide ratings for the app via a call to action button or dedicated social campaign," he adds.

Facebook offers mobile app install ads that can be geared at specific age groups, but it can be a struggle for fledgling apps to hit an affordable cost per install. Based on Scrobov's experience with Yum-Yum Recipes, users are leery of trusting apps without ratings. "We didn't start the promo campaign until we collected enough reviews," he explains. "The cost was too high, but after we got five ratings, cost per install dramatically dropped."

Pay to play

Other marketers focus solely on ratings as a tool to drive downloads. One such example, AppWinn, offers raffles for anyone who agrees to download and rate certain apps. Prizes range from gift cards to iPod touches, but founder and CEO Jonathan Martinez says that "all of the ratings and reviews are unbiased and represent real feedback from iOS users." However, a scan of the featured apps showed a propensity for four- and five-star reviews, yet Martinez insists AppWinn is dedicated to upholding the integrity of the App Store.

"As iOS app enthusiasts ourselves, we want to make sure we are only improving

Monument Valley

the ecosystem," he argues. "We have found that our users are fair in reviewing and developers have, more often than not, come out with great feedback in improving their apps further."

And then there's good old-fashioned direct contact. While Scrobov and Zhadanov both have had good results targeting heavy users of their apps with requests for ratings, I found one app that takes it a step further. Instead of simply asking for a review after using their app, Shoeboxed offered me £3.30 to write one. It's unclear how users are selected for the benefit or whether you need to meet certain criteria to qualify, but a week or so after I downloaded the app, I received an email offering an Amazon gift card in exchange for writing a review. I was sceptical, but upon leaving an honest

4-star review with a bit of criticism about upload speeds, sure enough, I got my reward. I'm not sure if this is a common practice used by the company – which declined to be interviewed for this article – but the receipt-tracking app is hardly starving for reviews. At the time of writing, the current version already has 149 reviews, averaging four stars.

However, the practice doesn't sit well with Monument Valley's Wong. "I think annoying, pestering, and bribing players is a bad habit," he says. "It's a desperate attempt to compensate for lacklustre, uninspiring, repetitive experiences. I'd much rather have a relationship with the players where we provide them with an experience that's polished and special enough that they leave us a rating or review of their own will."

Apple Maps hopes to catch rivals

Oscar Raymundo asks are transit directions and indoor mapping enough to make up lost ground?

The WWDC keynote in June included a very significant update to Apple's Maps app in iOS 9: public transport directions. Starting this autumn, we'll be able to use Maps to figure out a route to our destination that includes buses, the underground and trains. And it's been a long time coming. Since 2012 – when Google Maps was kicked to the curb in iOS 6 – Apple Maps has had a tab suggesting third-party apps (such as Google Maps) to get public transportation routes. The transit update in iOS 9 marks an important step for Apple and its Maps service not having to rely on third parties to provide such a core smartphone functionality. It took them three years.

You'd think that after all this time Maps would have an expansive network of public transportation schedules and routes, but this feature is only available in select cities, including London, Paris, New York and over 300 locations in China.

It's not shocking that Apple is taking its time creating a competitive Maps app. Cupertino is not fond of speed as much as precision. Apple says that Maps will one day be so accurate that it will tell you which Underground entrance is best to take. Apple has started to send out its own fleet of vehicles to collect detailed mapping data, including Street View-style images and 3D mapping. Beyond that, Apple is also testing self-driven robots to collect indoor mapping data of big office buildings and landmarks. The first building that Apple is looking to indoor map is the company's new spaceship-looking headquarters.

Slow and steady seems to be the company's strategy in beefing up Maps, but features such as transit directions and Street View are firmly in its competitor's rear-view mirror. Apple needs to pick it up a little or it could be left behind.

Google Maps

Google introduced Street View and mass transit info for iOS seven years ago in 2008. Back then, Google Maps included transit directions for 100 cities worldwide. Today that number has skyrocketed to over 18,000 cities in 64 countries.
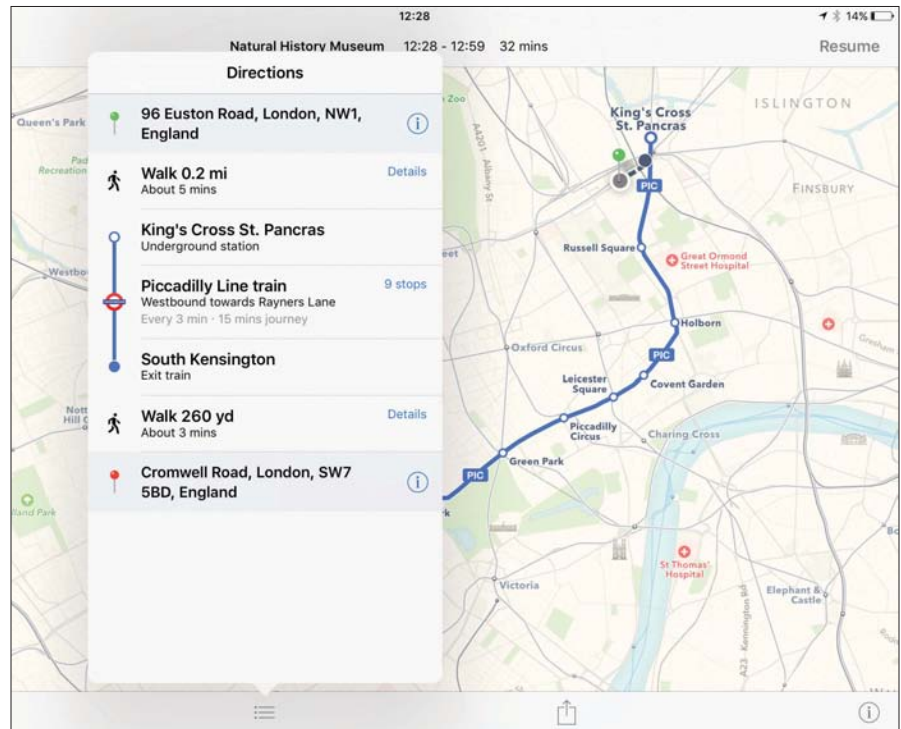
While Apple is trying to bring those essential features to Maps, Google (having already done all the heavy-lifting) can focus on the low-hanging fruit. Following WWDC, Google announced that iOS users will get a Google Maps feature that has been available on Android since April: the ability to send pinned locations from your desktop to your device. Ironically, this feature is already available on Apple's Maps desktop app for OS X.

Google Maps is also slowly inching up to the more socially driven services such as Yelp and Foursquare. In this new update, you'll also be able to view your photos and reviews directly in 'Your Places' profile.

Waze

Google also has a secret weapon when it comes to driving directions: Waze, the app it acquired for $1 billion in 2013. Waze became a popular and widely trusted alternative in turn-to-turn navigation because it has a network of drivers reporting traffic information, accidents on the road, and other hurdles in real time. Relying on drivers who are actually on the road at any given moments makes the data extremely accurate. Waze is often better at suggesting side roads or alternate routes because it gets its directions from the routes locals take every day.

The navigation app also leverages its community for other features, such as discovering new places and finding out if gas prices are surging.

This social, 0 element to directions is something that privacy-focused Apple is probably not going to try to imitate. But it could use its fleet of camera-equipped vehicles to map out every back alley and side road to make Maps the best at suggesting alternative, traffic-free routes. Those vehicles are already late to the game: what's another year mapping out areas that are off the beaten path.

Complete guide to Apple devices

EVERYTHING YOU NEED TO KNOW ABOUT MACS, iPHONES, iPADS, iPODS AND OTHER APPLE PRODUCTS

Welcome to *Macworld*'s in-depth guide to every Mac, iPad, iPhone and iPod that Apple makes, as well as other hardware and software that comes out of Apple's HQ in Cupertino, California. The first two pages offer a quick summary, with detailed looks on the following pages.

Apple makes six different kinds of Mac, and each has subcategories and variations in specs and features. Some Macs are faster and more powerful, while other Macs have slower processors but are cheaper. This guide should help you identify which Mac best suits your needs.

There are now four different iPhones and five iPads to choose from, along with a collection of iPods and the Apple TV. Plus, we should soon see the launch of the Apple Watch. Read on to understand every product that Apple makes.

MacBook Air   MARCH 2015
The MacBook Air is Apple's ultrathin and incredibly light laptop, sometimes referred to as an ultrabook. It comes in two screen sizes, 11in and 13in. Apple's cheapest MacBook Air costs £749. The range was updated in March 2015.

Mac mini   OCT 2014
The Mac mini is a compact desktop computer measuring less than 20x20cm and is Apple's cheapest Mac, starting at just £399 – the same price as a 16GB iPad Air 2. It features an HDMI port, which makes this computer a popular option for a home media centre as you can plug it directly into your TV screen.

Mac Pro   DEC 2013
The Mac Pro is Apple's professional Mac with a price tag to match – it starts at £2,499. It's a fully fledged workstation aimed at those who need the ultimate in power.

MacBook Pro   MARCH 2015   MAY 2015
There are two types of MacBook Pro available: one with a high-resolution Retina display and flash storage; and a simple version, which is the only Mac to feature a CD/DVD drive (the model hasn't been updated since 2012). There are two screen sizes of MacBook Pro Retina available: a 13in and a 15in. The 13in was updated in March 2015, and the 15in in May 2015. It is more powerful than the MacBook Air, but the prices are a lot closer than they used to be. The cheapest MacBook Pro costs £999.

iMac   OCT 2014   SEPT 2013   MAY 2015
The iMac is incredibly thin, with the whole computer concealed behind the gorgeous display. There are two different sizes of iMac available: the 21.5in and the 27in. The cheapest iMac costs £899. A new £1,599 Retina iMac has joined the flagship 5K Retina Mac introduced in October 2014.

NEW

MacBook   APRIL 2015
This is Apple's newest Mac. It's built more for style and portability than for the practicalities of computing – it has only one port and a basic processor – but it does have a Retina display, and it does come in gold, silver and space grey, just like your iPhone. This new Mac model went on sale in April 2015.

iPad Air `OCT 2014`

The iPad Air is Apple's biggest tablet. There are two models, both with a 9.7in Retina display: the original iPad Air, launched in 2013, and the iPad Air 2 with Touch ID, released in October 2014. The newer model is thinner, faster and more powerful, and there is a gold finish available as well as the original black and silver variants. The older iPad Air costs £319 (16GB) or £359 (32GB). The iPad Air 2 costs £399 (16GB), £479 (64GB) or £559 (128GB). You can buy an iPad with just Wi-Fi or with Wi-Fi and cellular coverage – add £100 to get the price with cellular coverage.

iPad mini `OCT 2014`

Apple sells three different iPad mini tablets. There's the original iPad mini, first launched in 2012 and now available for £199 (16GB). There is the iPad mini 2, launched in 2013, which costs £239 for the 16GB version, or £279 for 32GB. And there is an iPad mini 3, launched in October 2014 and starting at £399 for 16GB, £399 (64GB) and £479 (128GB). All three models are of a similar size with 7.9in screens. The original iPad mini lacks a Retina display, and only the iPad mini 3 offers Touch ID. Like the Air, you can pay £100 more to get a cellular version so that you can surf using 3G or 4G.

iPod `SEPT 2012`

When Apple introduced the iPod in 2001, it started a revolution that eventually ushered in the iPhone and the iPad. The original iPod is now long gone, and the company no longer sells the iPod classic, which was most like the original. However, you can still buy a number of different iPods. There's the iPod touch (from £159), which is as close as you can get to an iPhone without the phone, the iPod nano (£129) and the iPod shuffle (£40). The original iPod was a music player that famously allowed you to carry 1,000 songs in your pocket. Today's iPod touch lets you watch videos and download apps from the iOS App Store. The iPods haven't been updated since 2012 (except for a small tweak to the iPod touch in 2013).

iPhone 6 Plus `SEPT 2014`

The new iPhone 6 Plus is Apple's first phablet-style phone. Phablet is the name used for phones that are so big that they are like small tablets. The iPhone 6 Plus has a 5.5in screen, so it's really not very much smaller than the iPad mini. In addition to the bigger, better screen, the iPhone 6 Plus comes with a better camera than the iPhone 6. Prices start at £615 for the 16GB version; the 64GB version costs £699 while the 128GB iPhone 6 Plus costs £789.

iPhone 6 `SEPT 2014`

The iPhone 6 has a bigger screen than the iPhone 5s: 4.7in (measured diagonally, corner to corner) compared to the 4in of the 5s. The iPhone 6 is also thinner and lighter than the previous year's model. Like the iPhone 6 Plus, the iPhone 6 also comes equipped with a better A8 processor and an NFC chip for mobile payments. It costs £539 (16GB), £619 (64GB) or £699 (128GB).

Apple TV `JAN 2013`

The Apple TV is a 10cm square box that measures less than an inch high. You plug the device into your HDTV so that you can watch movies and TV shows from the iTunes Store. You can also play content from Netflix (for a £5.99 a month subscription), view videos on YouTube and Vimeo, and stream music and photos from iCloud. You can also view whatever is on your iPhone, iPad and iPod touchscreen, and push content from your Mac to your TV screen. The Apple TV costs £79, but the hardware hasn't been updated since 2012.

iPhone 5s `SEPT 2013`

The 5s is the iPhone that Apple introduced in September 2013. It's available in gold, silver or grey and has a Touch ID button allowing fingerprint scanning for security, rather than the older-style home button with a square in the middle. The Touch ID button is the most obvious difference. Apple is now selling only 16GB (£459) and 32GB (£499) models of the iPhone 5s.

iPhone 5c `SEPT 2013`

The iPhone 5c has a polycarbonate (plastic) shell that is available in six bright colours. Apple released the iPhone 5c alongside the iPhone 5s in September 2013. On the inside the 5c is pretty similar to the iPhone 5, although the camera on the 5s is a better model. Apple sells an 8GB iPhone 5c for £319.

Apple Watch `APRIL 2015`

Apple unveiled its first foray into wearable technology in September 2014, and six months later launched. There are 38 different Apple Watches available – thanks to the combination of the three different Apple Watch categories, two different face sizes, and the accompaniment of straps. Apple has said that Apple Watch prices will start at £299 for the 38mm Apple Watch Sport or £339 for the 42mm version. The Stainless Steel Apple Watch will cost from £479, while the 18-carat gold Apple Watch Edition will cost from £8,000.

Apple Store

HOW AND WHERE TO BUY YOUR APPLE PRODUCTS

It's easy to buy a brand-new Mac, iPad or iPhone from Apple. The simplest way is to got to store.apple.com/uk to purchase from the online store. Here you will find every current Mac, iPad and iPhone, and lots of accessories. Alternatively, if you'd prefer to try the product out, you could walk into the Apple Store on your high street or in your closest shopping mall. Not sure where your closest Apple Store is located? Apple has stores all over the country, 39 in total, and you can look for your local store at apple.com/uk/retail.

Unfortunately, as a rule Macs are not cheap but if you are looking for a bargain you can also pick up a Mac, iPad or iPhone second-hand from Apple. It's possible to buy refurbished Apple Macs, iPads, and other of the company's products, from a special section of the online store. Go to store.apple.com/uk and scroll to the bottom of the page where you will see a link to Refurbished & Clearance.

Refurbished Macs and iPads are likely to be brand new but returned models (if it is from a previous year) or reconditioned current devices. A reconditioned Mac could be an ex-demonstration model used during Apple teaching programmes, or a unit sold to a customer who subsequently decided to return it. The returned unit may have been faulty (and fixed) or may simply have been returned under the standard sale-and-returns procedure – Apple allows any customer to return a Mac bought from the Apple Store within 14 days for a refund as part of its standard returns policy.

The important thing to note is that Macs bought from the Apple Refurb Store are not discernibly different from new ones bought direct from the Apple Store. All the Macs bought from the Apple Refurb Store are cleaned, checked, tested and visually indistinguishable from brand-new models.

The only noticeable difference in our experience is that an Apple refurb Mac will be packaged in a brown box rather than the white retail box they normally arrive in. Aside from that, we have yet to pick up a Mac from the Refurb Store and find it wanting.

The price for reconditioned Macs changes frequently but is typically 10- to 20 percent less

Apple's online store can be found at store.apple.com/uk.

than the original price. With Macs commanding a high retail price, this reduction can represent quite a difference. For example, you can find a 2014 (that's the current generation) 1.4GHz iMac on the Refurb Store for £759 – a £140 saving on the £899 you'd pay for the exact same model in the Apple Store. There are even bigger savings to be made on older models. You can also find refurbished iPads on the store, but Apple doesn't resell second-hand iPhones.

You may also be able to get a deal on a new Mac by picking up one from your local Apple reseller, such as John Lewis and PC World, or Apple premium resellers like iStore, Stormfront, Solutions Inc, Western Computers and KRCS. They do have sales, and although Apple bargains are rare, they do come along occasionally.

However, you should beware that because Apple is strict with pricing and the margin that third-party retailers can make, it is rare that you will find a genuine bargain when buying a new Apple product from someone other than

Apple. You should always first visit Apple's online store to find out what is on offer from the mothership, and make sure that if you are buying an outdated model you are doing so knowingly. Copy down the specification and product code of the model you want, and use that in your search. If you know what to look for you could grab a bargain – just make sure that you aren't buying last year's model while being sold the idea of this year's.

One of the benefits of buying from Apple is its warranty and returns procedure, even for refurbished products. Apple states: "Before we put a refurbished Mac, iPod, iPad or Apple TV up for sale in special deals, it undergoes a rigorous refurbishment process to make sure it's up to Apple's tough quality standards."

More importantly, a reconditioned Mac comes with the same one-year warranty (extendable to three years with AppleCare protection). You also get the same sales and return procedure with Apple, and can return a Mac bought from the Refurb Store within 14 days if you're not happy with it.

The key thing, as always, is to know exactly what you want, and exactly what you are getting, especially if you are buying from a private seller. Get it all in writing, and if at all possible view the device you are buying, and use it, before you purchase. Always use a credit card to make expensive purchases, or a secure payment service such as PayPal. This will make it much easier to chase up if there is a problem. And remember, if it looks too good to be true, then it probably is: you really want to see proof of purchase before you buy a second-hand Mac to ensure it hasn't been stolen

Apple Store, Covent Garden, London

Apple Store, Regent Street, London

MacBook

THE LATEST ADDITION TO APPLE'S LAPTOP LINE-UP

There are actually two standard MacBook models available, both with a 12in screen (measured diagonally). Dimensions for both unit are identical: 28.05cm by 19.65cm, and 3.5mm at the edge tapering to 131mm thick (the MacBook Air tapers from 17mm to just 3mm). The new MacBook weighs less than a kilogram at 920g.

The key difference between the two models is the amount of storage available, and the speed of the processor, although the most obvious difference is that there are three colour choices: gold, silver and space grey, just like the iPhone.

The entry-level MacBook unit offers a 1.1GHz dual-core Intel Core M processor (Turbo Boost up to 2.4GHz), and 256GB PCIe-based flash storage. The other MacBook unit offers a 1.2GHz dual-core Intel Core M processor (Turbo Boost up to 2.6GHz), and 512GB PCIe-based flash storage. Both models offer 8GB RAM and Intel HD Graphics 5300.

There don't appear to be any build-to-order options, which would normally allow you to add a faster Intel processor, more storage, and more RAM. However, Apple did indicate in its press release announcing the product that there would be.

The new MacBook sports many new features including a Force Touch trackpad that utilises built-in force sensors so that when you click you receive haptic feedback, and Force Click – this adds a new dimension to clicking, a new way of right-clicking, perhaps. There is also a new keyboard with keys slightly more spaced out

than previously. Many of the new technologies incorporated in the new design have allowed Apple to make it slimmer and as lighter than any other Mac. For example, thanks to the new Core M chip the MacBook doesn't require fans, and by slimming down the logicboard Apple has been able to utilize every last corner for battery. Apple claims the MacBook is the "world's most energy efficient notebook".

Even the Retina display is the thinnest screen ever on a Mac. It offers a 16:10 aspect ratio and a resolution of 2304x1440. It also uses less energy than Retina displays on other Macs.

Apple admits that the MacBook is designed for the wireless world, and it has to be: there is only one port. This next generation USB-C port will support power in and out, so you can charge your MacBook from it, as well as plug in a hard drive or other peripherals. You will need an adaptor if you are hoping to plug more than one device in at a time, though.

MacBook Connections

The MacBook infamously had only one port (plus a headphone port). That's the trade-off required for Apple to create such a thin Mac. The single port is USB-C, which is a new industry standard that offers 5Gb/s data transfer via USB 3.1, as well as charging and DisplayPort 1.2. You will be able to plug anything into that port – but you will require an adaptor if you want to plug more than one thing in at a time.

Like the MacBook Air, the MacBook doesn't feature an Ethernet port, so if you want to plug it into a wired network at work or on holiday you will need to purchase an adaptor. However, the MacBook does offer 802.11ac Wi-Fi so it's unlikely that in today's wireless world you will need to plug it into a network.

Speed

The MacBook will not be Apple's fastest Mac, tests of other computers that use

the same chip suggests that the MacBook will be slower than last year's entry level MacBook Air, however, it does at least feature a SSD drive, so it could prove faster than Apple's other slowest Macs: the £899 iMac and the £399 Mac mini which utilize slower hard drive technology.

We're waiting to get the MacBook in our labs, and as soon as we do we will be testing them thoroughly.

Price

There are many Mac users for whom the MacBook will not be ideal. This is not a powerful computer and it is no replacement for the MacBook Pro. Nor is it necessarily a replacement for a MacBook Air while it is possible to upgrade to faster MacBook Air models for a lot less money.

The MacBook does have some points in its favour. It is 160g lighter than the MacBook, smaller (even than the 11in MacBook Air) and thinner, so if you are carrying it around in your bag that might be a relevant factor in your decision. The other big difference is that the MacBook ships with just 8GB RAM while the MacBook Air ships with 4GB RAM, but you can always upgrade that at point of purchase.

Whether the tradeoff of weight and size is significant to you will depend a lot on what you will be doing with the MacBook. If the majority of what you do on your Mac is everyday tasks, such as sending and receiving email, browsing the web, and using office applications, the MacBook should be quite capable of meeting your needs. If you're expecting to edit movies using Final Cut Pro we don't expect this Mac to cut the mustard.

Prices
The 256GB, 1.1GHz MacBook will cost £1,049
The 512GB, 1.2GHz MacBook will cost £1,299

MacBook Air

APPLE'S THINNEST, LIGHTEST LAPTOP

There are four standard MacBook Air models available, in two sizes. In March 2015, each MacBook Air was updated and now offers a 1.6GHz dual-core Intel Core i5 processor, 4GB of RAM and Intel HD Graphics 6000 as standard.

There are also build-to-order options that let you add a faster Intel processor (the 2.2GHz dual-core i7, for £130), more storage (512GB SSD for £240) and 8GB of RAM (for £80).

The only real differences between the different models are the size of the screen, the amount of storage and battery life. Both the 11in and 13in MacBook Air offer either 128GB or 256GB SSD options. The 11in MacBook Air offers nine hours of battery life, compared with the 12 hours of the 13in MacBook Air. The 11in MacBook Air weighs 1.08kg and its dimensions are 30x19.2cm. The 13in MacBook Air weighs 1.35kg and its dimensions are 32.5x22.7cm. Both models are just 1.7cm thin at the edge and taper to 3mm at the front.

Because of its smaller screen, the 11in MacBook Air offers fewer pixels than the 13in model – up to 1366x768 at a 16:9 aspect ratio, compared with 1440x900 at a 16:10 aspect ratio on the 13in. That display doesn't come close to what you get from the 13in MacBook Pro Retina model, though – that Pro offers 2560x1600 Retina resolution at 227 pixels per inch.

The two Airs have different aspect ratios. The 11in model is the only Mac with a 16:9 ratio – the same as a widescreen TV. Some people find the narrower screen more restrictive. The MacBook Air doesn't have a great many ports – that's the trade-off required for such a remarkably thin computer. There's no ethernet port, for example, so if you want to plug it into a wired network at work or on holiday, you'll need to buy an adaptor. However, the MacBook Air does offer built-in 802.11ac Wi-Fi, so it's unlikely that in today's wireless world you will ever need to plug it into a network anyway.

The MacBook Air also lacks an optical drive – the only Mac still to feature a CD/DVD drive is the MacBook Pro (the non-Retina model). We don't find we have much use for an optical drive these days, but if you really think you need one there is always the option of purchasing Apple's USB SuperDrive for £65.

There are two USB 3 ports, and you can also connect accessories (including external storage and monitors) to your MacBook Air via its Thunderbolt port, Apple's high-speed connector. Thunderbolt 1 is slightly slower than the Thunderbolt 2 ports on the Retina MacBook Pro, but still faster than USB 3 (20Gb/s for Thunderbolt 2, compared with 10Gb/s for Thunderbolt 1 and 5Gb/s for USB 3). The 13in MacBook Air comes with an SDXD card slot, but the 11in model doesn't.

Speed

The MacBook Air is one of the slowest Macs around – along with the £899 iMac and the £399 Mac mini. However, one of the MacBook Air benefits is its solid state drive (sometimes referred to as flash), which speeds up operation. Flash memory is superior to a hard drive because it is faster at reading data and the 13in drive is even faster than the 11in. This makes a huge difference when running your Mac: opening documents, starting applications and even booting up all happen much faster.

Whether all that matters to you depends a lot on what you will be doing with your computer. If the majority of what you do on your Mac is everyday tasks, such as sending and receiving email, browsing the web and using office applications, then the MacBook Air is quite capable of meeting your needs. You can also happily use it for editing short videos or working with photos.

Price

There are four standard versions of the MacBook Air available and various build-to-order options that you can add on a point of purchase.

Prices
11in MacBook Air 1.6GHz (128GB) £749
11in MacBook Air 1.6GHz (256GB) £899
13in MacBook Air 1.6GHz (128GB) £849
13in MacBook Air 1.6GHz (256GB) £999

Build-to-order options
2.2GHz dual-core Intel i7 £130
8GB RAM £80
512GB flash storage £240

We recommend that you purchase the extra RAM when you buy the MacBook Air as it cannot be upgraded later. If you feel you need more storage, you could buy an external hard drive or an NAS drive to store content on and back things up when necessary.

MacBook Pro

A SUPERIOR MAC LAPTOP WITH A DISPLAY TO MATCH

There are five standard Retina MacBook Pro models available, in two sizes, as well as a non-Retina MacBook Pro, which we will cover at the bottom of this page. In March 2015, Apple updated the 13in models, and in May 2015 it updated the 15in models.

The key selling point is the Retina display, so called because it delivers maximum optical quality – the human eye is unable to distinguish any more pixels. That make a Retina display about as precise as you can get, ideal for creative work.

The 13in model offers 2560x1600 Retina resolution at 227 pixels per inch, while the 15in model offers 2880x1800 resolution at 220 pixels per inch.

Unlike the MacBook Air range, the five Retina MacBook Pro models are substantially different in terms of spec, with the 15in models being equipped with quad-core i7 chips (2.2GHz or 2.5GHz), 16GB of RAM and more. The three new 13in Retina MacBook Pro units offer a dual-core Intel Core i5 processor (2.7GHz on two models, and 2.9GHz on the high-end version), 8GB of RAM, and Intel Iris graphics as standard.

The 13in models are available with 128GB, 256GB or 512GB flash storage, while the 15in models skip the 128GB version, offering only 256GB or 512GB.

There are various build-to-order options for the 13in models that allow you to add a faster Intel processor (a 3.1GHz dual-core i7, for £170), more storage (1TB SSD for £400) and 16GB of RAM (for £160).

The build-to-order options available for the 15in models include a faster 2.8GHz quad-core i7 Intel processor for £150, and 1TB storage for £400. It's worth remembering that the 2.8GHz clock speed of i7 Intel upgrade doesn't mean that the chip is slower than the 3.1GHz dual-core processor offered with the 13in MacBook Pro Retina model: it's an i7 and it's a quad-core, so it will be faster.

One of the key distinctions between the MacBook Air range and the MacBook Pro Retina models is battery life. The 11in MacBook Air offers nine hours of battery power and the 13in MacBook Air offers 12 hours. This compares with nine hours for the 13in MacBook Pro Retina, and nine hours for the 15in Retina model.

The other significant difference between Apple's laptop ranges lies in their weight and dimensions. The 13in Retina MacBook weighs 1.57kg, compared with the 1.35kg of the 13in MacBook Air. However, the dimensions of the 13in Retina MacBook are 31.4x21.9cm compared with 32.5x22.7cm for the MacBook Air – so the 13in Air is a slightly larger unit.

The 13in MacBook Pro isn't very much thicker than the MacBook Air either, measuring 1.8cm, while the Air is just a centimetre thinner, measuring 1.7cm at its thickest point (though it slims to 3mm at the front edge). The 15in MacBook Pro with Retina display measures 35.9x24.7cm and weighs 2.02kg. It's the same thickness as the 13in model at 1.8cm.

The MacBook Pro with Retina display has a few more ports on offer than the MacBook Air. Like the MacBook Air, the MacBook Pro Retina doesn't feature an ethernet port, but it does have built-in 802.11ac Wi-Fi, and if you need to plug into a wired network you will be able to buy an adaptor separately.

There are two USB 3 ports, but you can also connect accessories (including external storage and monitors) to your Retina MacBook Pro via the two Thunderbolt 2 ports (that's one more than on the MacBook Air, which uses the slower Thunderbolt 1). Thunderbolt is Apple's high-speed connector, which is faster than USB 3 (20Gb/s compared with 5Gb/s). You can buy various adaptors that let you plug FireWire 800 hardware, for example, into this port.

You will also find an HDMI port (for plugging into your TV) and a SDXC card slot (for your camera's memory stick) on both Retina MacBook Pro models.

If you are looking for a Mac capable of playing a DVD or CD, then you may want to look at the MacBook Pro without Retina display (see below), or buy a £65 SuperDrive separately. The new 13in MacBook Pro models come with Apple's ForceTouch trackpad, which will change the way you interact with your Mac.

Speed

The 13in MacBook Pro Retina is faster than the MacBook Air, so if it's the fastest 13in MacBook you want then it's worth spending a little more on the Retina display model.

However, if you want the fastest Retina MacBook Pro, you really need to look at the 15in models. The 13in models have a dual-core processor, while the 15in models have a quad-core processor, and right up at the top of the range the 15in MacBook Pro with Retina display features a Core i7 2.5GHz processor.

Price

There are five standard versions of the Retina MacBook Pro plus a range of build-to-order options that you can add on to your unit at the time that you purchase it. You can also purchase the MacBook Pro without Retina display, but we will deal with that unit separately, below.

Prices

13in Retina MacBook Pro 2.7GHz i5 (128GB) £999
13in Retina MacBook Pro 2.7GHz i5 (256GB) £1,199
13in Retina MacBook Pro 2.9GHz i5 (512GB) £1,399
15in Retina MacBook Pro 2.2GHz i7 (256GB) £1,599
15in Retina MacBook Pro 2.5GHz i7 (512GB) £1,999

Build-to-order options
13in Retina MacBook Pro
3.1GHz dual-core Intel i7 £170
16GB RAM £160
1TB flash storage £400
15in Retina MacBook Pro
2.8GHz quad-core Intel i7 £150
1TB flash storage £400

If you think that you might need the extra RAM in your 13in Retina MacBook Pro, then we recommend that you purchase the extra RAM when you buy the Mac as it cannot be upgraded subsequently. If you feel you need more storage, you could buy an external hard drive or an NAS drive to store content on and back things up when necessary.

Non-Retina MacBook Pro

As we mentioned at the start, the non-Retina MacBook Pro is the only Mac to offer an optical drive; it is also the only Apple laptop to still use a hard drive. The non-Retina MacBook Pro hasn't been updated since 2012 and many have been predicting its demise. That it still lives on is testament to the fact that there are people out there who want a Mac with a CD/DVD drive and a big hard drive. It offers a 2.5GHz dual-core Intel Core i5 processor, 4GB of RAM, a 500GB hard drive, and costs £899.

Mac mini
A TINY DESKTOP THAT'S APPLE'S CHEAPEST MAC

Two years after Apple last updated the Mac mini, it revamped its entry-level Mac and lowered prices. That October 2014 revamp resulted in three models of Mac mini.

The cheapest of the three Mac mini models has the same 1.4GHz dual-core processor and integrated graphics chip to be found on the MacBook Air and the entry-level iMac, so it's no surprise that the new Mac mini's processor and graphics performance is close to that of the current MacBook Air range and practically identical to the new £899 iMac. The MacBook Air has the edge due to its flash storage, while the Mac mini and iMac still feature a hard drive as standard.

The other two Mac minis offer Intel dual-core i5 2.6GHz and 2.8GHz processors with Intel Iris graphics. These chips are comparable to the processors inside the 13in Retina MacBook Pro, but, as with the MacBook Air, you can expect their faster flash storage to give these models a performance boost.

The Mac mini offers Intel i5 dual-core processor options as standard. There are i7 processors available at point of sale, but these are still only dual-core. Apple's previous generation of Mac mini models offered better, quad-core processors.

You can get a 2TB Fusion Drive for an extra £80 when you buy the £799 Mac mini, taking the price to £879. Only the top-of-the-range model offers this option.

The 2012 Mac mini server version offered a 2TB hard drive, which made it a popular choice among those looking for a media server, so Apple's decision to offer this 2TB Fusion Drive is probably a reaction to this.

The Mac mini weighs 1.22kg and its dimensions are 19.7x19.7cm. Its height is just 3.6cm.

The Mac mini's HDMI port makes it very popular for those wishing to set up a Mac media centre in their living room. This is despite the fact that the Mac mini lacks an optical drive – the only Mac that still features one is the MacBook Pro (the non-Retina model). There's not much call for an optical drive these days, but if you really think you need one there is always the option of purchasing Apple's USB SuperDrive for £65.

You will also find four USB 3 ports, an SDXD card slot, two Thunderbolt 2 ports and an IR receiver. The Mac mini used to offer a FireWire 800 port, which will be important to those who have previously made big investments in FireWire peripherals, although you could purchase a Thunderbolt to FireWire adaptor and continue to use your FireWire devices (there are two Thunderbolt 2 ports on the Mac mini, offering a throughput of 20Gb/s). The only Mac that still offers FireWire is the non-Retina MacBook Pro.

Another reason why the Mac mini has been a popular choice was the ease with which it could be upgraded. RAM, for example, could be slotted simply into place – unheard of in the majority of current Macs. Unfortunately this is no longer an option with the latest models, and you have to add extra RAM at the point of purchase if you think you will need it.

In the past the Mac mini has been pressed into service as a graphic designer's workstation, a home media centre for the family and even a web server for hosting entire commercial websites. However, the latest changes make this model more suited for consumers looking for the cheapest Mac available.

Speed
The Mac mini is not one of Apple's fastest Macs. The processor is comparable to the MacBook Air's, but the mini is scuppered by its slower hard drive. However, you could upgrade your Mac mini to a Fusion Drive for another £200, bringing the benefit of a faster flash drive combined with 1TB of standard storage. It's a setup that could deliver you a surprisingly speedy Mac for just £599.

The big disappointment with the current range of Mac mini models is that they lack the processor performance of the previous models, first introduced in 2012. The October 2014 update saw the departure of quad-core processor options, for example. In our Geekbench tests we saw a very small increase in single-core mode, but the new top-of-the-range model scores just 56% of the older top-of-the-range model's speed when it came to multi-threaded applications. At least in terms of graphics processing the new Mac minis take the upper hand, benefiting from newer integrated graphics chips.

Price
There are three Mac minis available, with a few build-to-order options that you can add on at point of purchase.

Prices
Mac mini 1.4GHz dual-core i5 (500GB) £399
Mac mini 2.6GHz dual-core i7 (1TB) £569
Mac mini 2.8GHz dual-core i7 (1TB Fusion drive) £799

Build-to-order options
3GHz dual-core Intel i7 £160
16GB RAM £160
1TB Fusion Drive £160
256GB SSD £160
512GB SSD £240

If you think you might need the extra RAM we recommend you purchase it when you buy the Mac mini. It used to be possible to upgrade the RAM in a Mac mini but this is no longer possible as it is now soldered on. We would recommend the Fusion Drive option as the SSD part of the storage will speed things up considerably, while the extra capacity of the drive is likely to come in handy. If you are setting the Mac mini up as a home media centre you may want an optical drive, but you can always purchase a SuperDrive for £65, and continue to play DVDs and CDs that way.

iMac

APPLE'S SUPER-THIN, ALL-IN-ONE DESKTOP COMPUTER

You may think the iMac was only recently updated, with a new 5K Retina iMac joining the one introduced in October 2014. However, the rest of the iMac range, with the exception of the £899 model introduced in June 2014, has not been updated since September 2013. The iMac line-up includes three 21.5in versions, one 27in model and two Retina 27in systems.

The £899 entry-level 21.5in iMac has a 1.4GHz dual-core i5 chip, 8GB of RAM and a 500GB hard drive. Next up is an iMac that for another £150 gives you a faster 2.7GHz i5, 8GB of RAM and a 1TB hard drive. For another £150, the top-of-the-range 21.5in iMac offers a 2.9GHz i5, 8GB of RAM and a 1TB hard drive.

All the 27in iMacs also offer quad-core i5 chips, which will deliver more power than the smaller iMacs. The entry-level 27in iMac has a 3.2GHz quad-core i5 processor, 8GB of RAM and a 1TB hard drive, but lacks a Retina display.

There are two 27in Retina models. The original offers a 3.5GHz quad-core i5 processor with 8GB of RAM as standard (you can add 16GB or 32GB of RAM and a 4GHz quad-core i7 at point of purchase for a price), plus a Fusion Drive as standard. It will cost you £1,849. There's now a new £1,599 model with 3.3GHz processor. The Retina iMacs use AMD Graphics, while the non-Retina 27in uses nVidia.

You may be wondering why the iMacs don't yet feature SSD flash drives (with the exception of the Fusion Drive in the top of the range Retina iMac). So are we. Luckily, there are various build-to-order options which allow you to add Fusion Drives and flash storage, as well as up to 16GB of RAM, and faster processors (3.1GHz dual-core i7, for £160 on the 21.5in; 4GHz quad-core i7 for £200 on the flagship. Flash storage options include 256GB SSD for £160, 512GB SSD for £400, and a Fusion Drive (which combines flash storage with a hard drive) for £160. The Fusion Drive is a great solution, allowing you to benefit from more storage capacity and a faster experience.

The only upgrade options on the entry-level £899 iMac are the Fusion Drive (£200) and other SSD options.

The graphics cards are another differentiator between the different iMacs. The £899 model features the Intel HD 500 found in the MacBook Air, the next model up has an Intel Iris Pro, while the top-of-the-range 21.5in iMac features the nVidia GeForce GT 750M. The non-Retina 27in model offers the nVidia GeForce GT 755M.

The specs of the 21.5in iMacs are now below the MacBook Air and MacBook Pro, so it may be worth the laptops for power. Obviously the need for portability may play a big part in a choice between the two, though. Remember that if you choose a laptop, you can always plug it into your screen when you are at your desk.

Wondering how much space it will take up on your desk? The 21.5in iMac measures 52.8x45cm. The 27in iMac dimensions are 65x51.6cm. The screen is just 5mm thick. The base of the stand is 17.5cm deep on the 21.5in and 20.3cm on the 27in. The iMacs weigh 5.68kg or 9.54kg, so we don't recommend carrying them around.

The iMac offers an SDXC slot, USB slots, Thunderbolt 1 ports, 802.11ac Wi-Fi and ethernet. The Retina iMacs are the only ones with Thunderbolt 2.

There is no optical drive. Apple traded in the built-in SuperDrive when it slimmed down the monitor to a superthin 5mm. If you really think you need one, you can always buy Apple's USB SuperDrive for £65.

Speed

The flagship Retina iMac is one Apple's fastest Macs, and comparable to the Mac Pro. In fact, we would prefer the Retina iMac thanks to its gorgeous 5K Retina display (an equivalent display would cost around £1,500 extra for the Mac Pro).

Among the 2013 models still available, it is likely that it is the hard drive that slows down this generation of iMacs, so if you add a Fusion Drive you will be giving your iMac a huge boost.

The entry-level £899 iMac is one of the slowest Macs around. Those purchasing one should upgrade it with a £200 Fusion Drive – which combines an SSD with a hard drive – as this will make a much bigger impact than spending £150 to get the 2.7GHz iMac.

There is also quite a leap from the 21.5in iMac models to the 27in models. This isn't surprising as the 27in iMacs are aimed at the power user, and have a price to match.

Price

There are six iMac models available, with a few build-to-order options that you can add on at point of purchase. Our top iMac recommendation is that you buy a Fusion drive or an SSD as a build-to-order option. The iMac line-up is let down by the hard drives they are equipped with as standard.

It's also worth updating a 21.5in model at the same time as you purchase one so that it takes 16GB of RAM rather than the 8GB supplied as standard – it's not possible to update the RAM at a later date. However, the 8GB of soldered-on RAM on the entry-level 1.4GHz iMac cannot be upgraded at all, even at point of purchase. Accordingly we recommend the Fusion Drive option as it will speed up performance.

Prices

21.5in iMac 1.4GHz (500GB) £899
21.5in iMac 2.7GHz (1TB) £1,049
21.5in iMac 2.9GHz (1TB) £1,199
27in iMac 3.2GHz (1TB) £1,449
27in iMac Retina 3.5GHz (1TB) £1,599
27in iMac Retina 3.5GHz (1TB Fusion drive) £1,849

Build-to-order options

3.1GHz quad-core Intel Core i7 £160 (21.5in only)
3.5GHz quad-core Intel Core i7 £190 (27in only)
4GHz quad-core Intel Core i7 £200 (Retina iMac only)
16GB RAM £160
32GB RAM £480 (27in only)
3TB hard drive £120 (27in only)
1TB Fusion Drive £160
3TB Fusion Drive £280 (27in only)
256GB SSD £160
512GB SSD £400
1TB SSD £800 £640 (3.5GHz Retina)

Mac Pro
APPLE'S PROFESSIONAL WORKSTATION

Having neglected the Mac Pro for a few years, Apple eventually updated the line-up at the end of 2013. That leaves us with two standard Mac Pro models – a quad-core 3.7GHz Intel Xeon E5 (£2,499) and a six-core 3.5GHz Intel Xeon E5 (£3,299).

As well as sporting more cores and a different processor, the top-of-the range Mac Pro also features 16GB of RAM (rather than 12GB) and faster graphics cards – the Dual AMD FirePro D500 with 3GB of GDDR5 VRAM each (rather than the Dual AMD FirePro D300 with 2GB GDDR5 of VRAM). These are dual graphics cards, one of the selling points of the Mac Pro.

Apple claims that with the additional power, users will be able to "seamlessly edit full-resolution 4K video while simultaneously rendering effects in the background – and still have enough power to connect up to three high-resolution 4K displays".

Both standard units also feature 256GB flash storage, with build-to-order options for 512GB or 1TB of flash storage.

Those buying the Mac Pro will be choosing from the various build-to-order options, of which there are many. Choices include a 12-core 2.7GHz processor, 64GB of RAM, a 1TB flash drive, and the Dual AMD FirePro D700 GPUs with 6GB of GDDR5 VRAM. If you were to build the ultimate Mac Pro, it would cost £7,299.

Wondering how much space the Mac Pro will take up on your desk? The Mac Pro has a diameter of 16.7cm and is 25.1cm tall. It weighs 5kg, a fraction less than the 21.5in iMac. The old aluminium Mac Pro is a giant in comparison.

The Mac Pro offers six Thunderbolt 2 ports – that's enough to drive three 4K displays or six Thunderbolt displays, if you wanted to. You'll also find dual gigabit ethernet – two ethernet controllers, each connected to its own lane, ensuring that there is enough bandwidth to operate at full speed. As you would

expect, the Mac Pro also offers 802.11ac Wi-Fi.

There is no FireWire port on the Mac Pro, but you can get a Thunderbolt to FireWire adaptor. There are four USB 3 ports, as with the Mac mini and iMac.

The Mac Pro lacks an optical drive. Most people probably have little use for an optical drive these days, but if you really think you need one, then there is always the option of purchasing Apple's USB SuperDrive for £65.

Speed
As you would expect from Apple's flagship Mac, the Mac Pro is fast. However, the year-old 27in iMac and the top-of-the-range 15in MacBook Pro aren't that far behind the entry-level Mac Pro. And if you bump up your iMac when you buy it with build-to-order options you can get a Mac for your money that rivals even the six-core Mac Pro model.

But there is more to the Mac Pro than the speed and many users will be attracted by many of its advanced technologies, such as the dual GPUs, the powerful multicore processors, the Thunderbolt 2 ports, and the superfast flash storage. For many, the build-to-order options will let them build a professional and powerful workstation capable of doing things iMac users can only dream of.

Yet there is something to be said for the iMac with 5K Retina display. The standard 5K iMac features an incredible screen, backed by a 3.5GHz quad-core Intel i5 CPU, 8GB of RAM, 1TB Fusion drive and AMD Radeon R9 M290X GPU for £1,999. Build-to-order options include a 4GHz i7 (£200), and upgrading the GPU to an AMD Radeon R9 M295X for £200. If you added these two features to the iMac, you would pay £2,399, which is still less than the Mac Pro and includes a 5K display; an equivalent Dell display costs just under £2,000.

Price
There are two Mac Pro models available, with a number of build-to-order options that you can add on at the point of purchase.

Configuring the ultimate Mac Pro will cost you a cool £7,779. If you have any cash left over, then you could add a Sharp 32in 4K monitor to that for another £2,999. Or why not go the whole hog and add three Sharp 4K monitors, setting you back £16,776. That would be some Mac setup.

If you have the cash, we would recommend the six-core Mac Pro over the quad-core, but even better, add as many build-to-order options as you can afford.

Prices
Mac Pro 3.7GHz (quad-core) £2,499
Mac Pro 3.5GHz (six-core) £3,299

Build-to-order options
3.5GHz six-core with 12MB of L3 cache £400 (quad-core only)
3GHz eight-core with 25MB of L3 cache £1,600/£1,200
2.7GHz 12-core with 30MB of L3 cache £2,800/£2,400
16GB RAM £80 (quad-core only)
32GB RAM £400/£320
64GB RAM £1,040/£960
512GB SSD £240
1TB SSD £640
Dual AMD FirePro D500 GPUs with 3GB GDDR5 VRAM £320 (quad-core only)
Dual AMD FirePro D700 GPUs with 6GB GDDR5 VRAM £800/£480

Which Mac?

HOW TO CHOOSE THE MAC THAT WILL SUIT YOU

With so many Macs to choose from, each with very different features and specs, it can get a little tricky when it comes to deciding which Mac to buy. How do you know which Mac is best for you? Should you buy a Mac mini, an iMac or a Mac Pro? Or would you be better off with a MacBook, MacBook Air or a Retina MacBook Pro? Which Mac is best for you really depends on your needs and how much you are prepared to spend to meet them.

As a rule Macs are more expensive than PCs, but that's really because there are more low-cost PCs available. If you want a laptop that costs less than £300, then you will have to settle on a PC (or find yourself a second-hand Mac). However, we think it's worth spending a little more to get a lower-priced Mac, rather than saving a few pounds buying a budget PC.

If you want to spend as little as possible on your new Mac, you have a few choices. The Mac mini is an obvious one, with the price starting at £399, but you will need to factor in the cost of a display as well as a mouse and keyboard if you don't already have those peripherals.

An alternative might be the £799 11in MacBook Air, which is a neat little laptop, although you may end up buying a separate display to plug into when sitting at your desk.

If you are happy to spend a little more on a reasonably priced Mac laptop, then you might like the 13in MacBook Air or the 13in MacBook Pro with Retina display. These models start at £849 for the Air, and £999 for the Pro, with the Pro version bringing a faster processor and more RAM as well as that gorgeous Retina display. The one thing in favour of the Air is the longer battery life (12 hours as opposed to nine). There is also the weight difference, but it's quite minor really – the Pro is 1.57kg, while the Air weighs 1.08kg. There's is now the added option of the new MacBook. Weighing in at 920g, it's lighter than any other Mac laptop, though, also less powerful. It's priced at £1,049 and £1,299.

If it's a reasonably priced desktop you are after, then the £899 iMac might look like a good option, but you should note that the specs in that machine are pretty similar to those in the £399 Mac mini. With that in mind, it might be better to spend a little more to get one of the other two 21.5in iMacs, although both of those cost more than £1,000.

Another option would be to get a build-to-order version of the iMac with a Fusion drive, which will bring a faster flash drive into the equation for an extra £200. That would bring the price of your iMac to £1,099, or if you did the same with the Mac mini, £599. In both cases we've found the Fusion drive a better option than the next model up in the same range, because the additional flash memory will speed up the Mac more than another model still restricted by a standard hard drive.

But what if you are prepared to spend a little more to get a decent Mac laptop? In that case we'd recommend the 15in Retina MacBook Pro. It costs £1,599 but comes with a decent quad-core Intel Core i7 processor as well as 16GB of memory. It also comes with 256GB of flash storage; if you think you need more you can get 512GB for £1,999, but we'd probably go for an external hard drive if we needed extra space.

If you want to spend a little more to get a decent Mac desktop, then the 27in iMac is a great option. Prices start at £1,499 and you get a decent quad-core Intel Core i5 processor. The only thing that lets the iMac down compared to the MacBook Pro is the slower hard drive that comes as standard, and the 8GB of RAM. Both of these factors can be rectified when you buy the Mac, as you can take up the 16GB of RAM option for an additional £160, and a Fusion drive or 265GB flash storage for another £160. That would bring the price of your iMac to £1,769.

If it's a top-of-the-range Mac you want, then you have two choices: the 27in Retina 5K display iMac, which costs £1,999; or the Mac Pro, Apple's workstation-class Mac, which features a Xeon E5 processor, 12GB of RAM, dual AMD graphics cards and 256GB of flash storage, with prices starting at £2,499. The Retina iMac comes with a Fusion drive, 8GB of RAM, and a superfast Intel quad-core i5 processor. That's a difference of £500, although with the iMac you gain the gorgeous display; to get a similar 5K display, such as Dell's UltraSharp 27 Ultra HD, to use with your Mac Pro would set you back £1,762. We'd be inclined to recommend the iMac in this case.

iPhone 6 Plus

APPLE'S BIGGEST PHONE, THE IPHONE PHABLET

When Apple introduced the iPhone 5 in 2012, it described it as the perfect size for a smartphone – you could hold it comfortably in one hand while reaching all four corners with the thumb of that hand. Apple might have been convinced back then that a 4in screen was perfect, but in the years that followed alternative smartphones arrived in sizes that dwarfed the iPhone 5. By 2014 the iPhone was one of the smallest smartphones available; it seemed that people didn't really mind that much if they couldn't reach the corner with their thumb.

Apple launched its first entry into the phablet category in September 2014. The iPhone 6 Plus is Apple's biggest ever iPhone with a screen that measures a whopping 5.5in (diagonally) and offers 1920x1080 resolution at 401 pixels per inch. Phablet is the term used to describe a large phone that is almost a tablet. The popularity of phablets is thought by some to be causing a decline in interest in tablets themselves, as people turn to large phones that have good-sized screens and bring the advantage of operating as a mobile phone.

The iPhone 6 Plus is available in silver, gold or space grey, and measures 158.1mm tall by 77.8mm wide, is a mere 7.1mm thick and 172g in weight. Apple addressed its concerns about users' comfort when holding such a big phone: the iPhone 6 Plus comes with a Reachability feature, which at a double-tap on the home button brings the top of the screen down so you can reach the controls.

The iPhone 6 Plus features Apple's A8 chip and the M8 motion co-processor. The motion co-processor chip is used to collect sensor data – it's a clever way to save battery life as it bypasses the processor. A barometer is also included inside the iPhone 6 Plus.

The iPhone 6 Plus offers Touch ID, and like the iPhone 6, NFC, which is a necessary technology if you intend to use Apple Pay (not yet launched in the UK).

There is also a new 8Mp iSight camera on the back with focus pixels and an f/2.2 aperture (also shared with the iPhone 6). The iPhone 6 Plus camera is the only Apple iPhone to offer optical image stabilisation, which makes for better pictures in low light. The iPhone 6 Plus shares many of its other camera features with the iPhone 6, including 43Mp panorama and the option of recording HD video at 60fps and slo-mo video at 120fps or 240fps. You also get cinematic video stabilisation and continuous autofocus video in both iPhone 6 models. Another feature offered only by the iPhone 6 and 6 Plus is 802.11ac Wi-Fi (other iPhones only go as high as 802.11n).

Perhaps the biggest deal for those looking to purchase a new phone is battery life. Apple says that the iPhone 6 Plus battery life gives up to 24 hours of talk time on 3G; up to 16 days/384 hours on standby; up to 12 hours of internet use on 3G, up to 12 hours on LTE, and up to 11 hours on Wi-Fi; up to 14 hours of video playback; and up to 80 hours of audio playback.

By contrast, Apple says that the iPhone 6's battery life gives up to 14 hours of talk time on 3G; up to 10 hours of internet use on 3G, up to 10 hours on LTE, and up to 11 hours on Wi-Fi; up to 11 hours of video playback; and up to 50 hours of audio playback.

So the iPhone 6 Plus gives you the most battery life you can get from an iPhone. This is no real surprise, as the iPhone 6 Plus's battery is listed at 2915mAh at 3.82 volts, which is substantially larger than the iPhone 6's 1810mAh battery.

Speed
The iPhone 6 and iPhone 6 Plus are powered by the same A8 processor, but at different clock speeds. The iPhone 6 Plus runs at 1.39GHz compared with the iPhone 6's 1.2GHz.

For that reason, the iPhone 6 Plus is faster than the iPhone 6. When we ran Geekbench the iPhone 6 Plus scored 1,626 (single-core) and 2,917 (multicore), while the iPhone 6 scored 1,517 (single-core) and 2,586 (multicore).

Graphics performance is also good, but we've yet to notice any real difference between the iPhone 6 Plus and the iPhone 5s, although as more graphics-heavy games appear you may be glad of the extra graphics prowess.

Price
The iPhone 6 Plus starts at £619. Each of the three models available costs £80 to £90 more than the equivalent capacity iPhone 6.

Prices
16GB iPhone 6 Plus £619
64GB iPhone 6 Plus £699
128GB iPhone 6 Plus £789

However, we'd advise against buying the 16GB entry-level version – you are likely to find it frustrating staying within 16GB, especially when Apple next updates its operating system (in 2014 the OS required as much as 5GB of space on some iPhones). The 64GB iPhone 6 Plus costs just £80 more for four times as much storage.

iPhone 6

THE 4.7IN SUCCESSOR TO THE IPHONE 5S

The iPhone 6 Plus wasn't the only larger iPhone to launch in 2014. The iPhone 6 was also introduced, with a screen that measures 4.7in (diagonally) and offers 1334x750 resolution at 326ppi.

This suggests that the iPhone 6 has the same pixel density as the iPhone 5s, but Apple has still dubbed its new screen 'Retina HD', presumably because it is counting the total number of pixels on display, rather than how close together they are. The iPhone 6 Plus offers a higher pixel density of 401ppi and is also described as Retina HD. Despite the similar sounding pixel count between the iPhone 6 and iPhone 5s, Apple has also made modifications to the newer screens' design, adding dual-domain pixels that allow for improved viewing angles, and other features that enhance the visibility of the display as well as a better contrast ratio (the contrast ratio on the iPhone 6 is in fact better than that on the iPhone 6 Plus).

iPhone 6 sports the same curvaceous design as the iPhone 6 Plus, albeit slightly smaller dimensions. It measures 138.1mm tall by 67mm wide, is just 6.9mm thick, and weighs 129g. It is available in silver, gold or space grey.

Although smaller than the iPhone 6 Plus, the iPhone 6 is still very large, and only the most gigantic hands would be able to comfortably reach to the edges in one-handed use. As a result Apple, also offers Reachability on the iPhone 6, which allows you to double-tap on the home button to pull the top of the screen down so you can reach the controls.

One major design change for the iPhone 6 and iPhone 6 Plus is the relocation of the on-off button. This was found at the top of the phone in previous generations, but now the button has moved to the side of the phone to make it easier to reach when you are holding it one-handed (the new home for this button does make taking screen shots harder, though).

Like the iPhone 6 Plus, the iPhone 6 features Apple's A8 chip and the M8 motion co-processor. The A8 is 50 percent more power-efficient than the A7, according to Apple.

A barometer is also included for measuring air pressure to determine your elevation (it can basically tell if you have been going upstairs). This is one of the new fitness and health features available to iPhone users. All iPhones also offer an accelerometer and gyroscope for the same purpose.

The iPhone 6 also offers Touch ID, and, as does the iPhone 6 Plus, NFC, which is a necessary enabling technology for using Apple Pay (not yet launched in the UK).

All of Apple's current iPhones offer an 8Mp camera. The iPhone 6 and iPhone 6 Plus camera still only offers 8Mp, but it gains focus pixels. Both iPhone 6 models and the iPhone 5s offer an f/2.2 aperture.

The iPhone 6 shares some other camera features with the iPhone 6 Plus. These include 43Mp panoramas, the option of recording HD video at 60fps and slo-mo video at 120fps or 240fps. There is also cinematic video stabilisation and continuous autofocus video. You will also find 802.11ac Wi-Fi in the iPhone 6, while the older models only go as high as 802.11n.

When it comes to battery life, Apple says that the iPhone 6 offers up to 14 hours of talk time on 3G; up to 10 hours of internet use on 3G, up to 10 hours on LTE, and up to 11 hours on Wi-Fi; up to 11 hours of video playback; and up to 50 hours of audio playback. You'll get more battery life from the iPhone 6 Plus, but the iPhone 6 battery is still better than those in the iPhone 5s and iPhone 5c, which both have identical battery life, according to Apple. The iPhone 5s/5c handsets offer up to 10 hours of talk time on 3G; up to eight hours of internet use on 3G, up to 10 hours on LTE, and up to 10 hours on Wi-Fi; up to 10 hours of video playback and up to 40 hours of audio playback.

Speed

Both the iPhone 6 and iPhone 6 Plus are powered by the same A8 processor, but it's running at different clock speeds. The iPhone 6 runs at 1.2GHz, while the iPhone 6 Plus runs at 1.39GHz, according to Geekbench.

When we ran Geekbench the iPhone 6 scored 1,517 (single-core) and 2,586 (multicore), while the iPhone 6 Plus scored 1,626 (single-core) and 2,917 (multicore). Not surprisingly the iPhone 6 Plus is faster than the iPhone 6.

The iPhone 6 is faster than the iPhone 5s, though. The iPhone 5s scored 1,409 (single-core) and 2,549 (multicore).

Graphics performance is good, but you are unlikely to notice any real difference unless you are using really graphics-heavy games.

Price

The iPhone 6 starts at £539 – £10 less than the original starting price of the iPhone 5s when it launched in 2013.

Prices
16GB iPhone 6 £539
64GB iPhone 6 £619
128GB iPhone 6 £699

Each of these phones costs £80 to £90 less than the same-capacity iPhone 6 Plus.

As we mentioned previously, we'd advise against buying the 16GB version as you are likely to find it frustrating staying within that 16GB storage limit, especially when Apple next updates its operating system (which in 2014 required as much as 5GB of space on some iPhones). The 64GB iPhone 6 costs just £80 more and for that you get 300% more storage.

iPhone 5s
THE 4IN iPHONE WITH TOUCH ID

In 2013 Apple upgraded its existing iPhone platform, splitting the iPhone 5 into two in the process. It created the iPhone 5s, which features Touch ID to let you unlock your iPhone and pay for things on the App Store merely by touching your finger to the home button, and the more playful iPhone 5c, which comes in a range of colours. Both phones are still available from Apple, although the larger capacities are now discontinued. They remain good options for those looking for a cheaper iPhone.

The iPhone 5s screen measures 4in (diagonally) and offers 1136x640 resolution at 326ppi. Although this may suggest that the iPhone 5s has the same pixel density as the iPhone 6, the iPhone 6 has a greater number of pixels in total, not to mention a superior screen with better viewing angles and contrast ratio.

The iPhone 5s sports a different design to the iPhone 6 models and the iPhone 5c. The iPhone 5s is more angular, with sharper edges, while the other models have curved edges. It is the smallest and lightest iPhone, measuring 123.8mm tall by 58.6mm wide and just 7.6mm thick, and weighs 112g. Like the iPhone 6 models, the 5s is also available in silver, gold or space grey.

Both of the cameras on the iPhone 5s offer improvements when compared to the iPhone 5c. The camera on the back has bigger pixels, a bigger sensor, a new True Tone flash, and various other hardware and software features.

As far as the bigger pixels are concerned, larger pixels yield greater electrical output, which produces clearer images in low-light conditions without any resort to messy noise-reduction techniques.

When Apple launched the iPhone 5s it was the first time that a smartphone manufacturer had opted to increase pixel size rather than pixel numbers. All iPhone cameras offer 8Mp – and this is sufficient. Cramming a load of pixels onto a sensor will not create a better image, it just means that the file size is bigger. The larger sensor and a bigger lens serve to let in more light, as does the faster aperture of f/2.2 instead of f/2.4. The faster f/2.2 aperture on the iPhone 5s really helps with indoor and dusky shooting. Both iPhone 6 models also offer a f/2.2 aperture.

The iPhone 5s lacks some of the camera features you'll find on the iPhone 6 Plus and iPhone 6, including 43Mp panoramas, the option of recording HD video at 60fps and slo-mo video at 120fps or 240fps. HD video and slo-mo features are all available on the iPhone 5s, but the quality is poorer. One other area where the iPhone 5s surpasses the iPhone 5c is the FaceTime camera, which offers auto HDR for photos.

Only the iPhone 6 models offer 802.11ac Wi-Fi. The older iPhone models only go as high as 802.11n.

When it comes to battery life, Apple says that the iPhone 5s offers up to 10 hours of talk time on 3G; up to eight hours of internet use on 3G, up to 10 hours on LTE, and up to 10 hours on Wi-Fi; up to 10 hours of video playback; and up to 40 hours of audio playback. You'll get more battery life from the newer, iPhone 6 models.

Speed

The iPhone 5s is powered by the A7 processor, which was first introduced with this phone in 2013, running at 1.3GHz, according to Geekbench. When the A7 chip launched it was a giant leap on its own account, offering a huge speed improvement thanks to its 64-bit capabilities.

When we ran Geekbench, the iPhone 5s scored 1,409 (single-core) and 2,549 (multicore). By comparison the iPhone 6 scored 1,517 (single-core) and 2,586 (multicore), while the iPhone 6 Plus scored 1,626 (single-core) and 2,917 (multicore). The Geekbench score of the iPhone 5s was more than twice that of the iPhone 5c.

When it comes to games and graphics capabilities, the GPU performance of the iPhone 5s is superior to that of the iPhone 5c; we saw some big differences using GFXBench 2.7's T-Tex C24Z16 1080p offscreen test. The iPhone 5s was able to push 25 frames per second, more than three and a half times the number of frames supported by the iPhone 5c. While these results are below the iPhone 6 and 6 Plus, it is unlikely you will really notice the extra unless you are playing the most power-hungry games.

Price

The iPhone 5s starts at £459, which is some £90 cheaper than the same model cost when it launched in 2013.

Prices	
16GB iPhone 5s	£459
34GB iPhone 5s	£499

The iPhone 5s is the only iPhone available with a 34GB capacity. Apple removed the 34GB option from the line-up for its iPhone 6 models, which come only in 16GB, 64GB and 128GB versions.

But at just £40 more it's a no-brainer to buy the 34GB version of the iPhone 5s. We'd advise against the 16GB version, as you are likely to find it frustrating staying within that storage limit. When Apple updates its operating system it will take even more than the 5GB of space required on some iPhones by its 2014 update.

iPhone 5c

APPLE'S CHEAPEST, MOST COLOURFUL iPHONE

When the iPhone 5c launched in 2013 it disappointed some who were hoping for a low-cost smartphone from Apple. At launch the iPhone 5c cost £469 – only £80 less than the equivalent iPhone 5s. Months later the company introduced a 8GB version of the 5c for £429. Now that same 8GB version of the iPhone 5c costs £319, a saving of £110. The big question, though, is whether £319 now represents a good price for the iPhone 5c.

If you are determined to buy an iPhone but don't want to spend a lot, then the iPhone 5c might be worth considering. If price is your main concern, it's also worth looking around for a second-hand iPhone, or you may find you can get a good deal on a new handset from your mobile phone network. All the prices we quote are what Apple sells the iPhone for if you purchase it off-contract, allowing you to shop around for a monthly plan or pay-as-you-go contract that suits you (or perhaps you already have a great contract and don't want to lose it). It is also likely you will be able to find a contract with one of the UK mobile networks that will give you an iPhone 5c handset for free.

The main issue with the iPhone 5c is that it offers just 8GB of storage space; although we have heard of some mobile networks offering 16GB iPhone 5c models, Apple doesn't. You may find it hard to imagine that you will ever need a great deal of storage space, but it's worth considering that when the next version of the iPhone operating system is released you may well find that you will need more space to install the update than you have available on your iPhone.

In this case, while the leap up to the iPhone 5s is not easy to recommend – because at £140 more it is quite a significant extra chunk of cash – it will still give you twice as much potentially precious storage as the 5c. The 5s also comes with various other features such as Touch ID, so you can unlock your iPhone and pay for things on the App Store merely by touching your finger to the home button.

Like the iPhone 5s, the iPhone 5c has a screen that measures 4in (diagonally) and offers 1136x640 resolution at 326ppi.

The design of the iPhone 5c is more reminiscent of the original iPhone than the iPhone 5s and iPhone 6 models. It has a smooth plastic case that comes in five different colours: green, blue, yellow, pink and white. It's a fraction larger and heavier than the iPhone 5s, measuring 124.4mm tall by 59.2mm wide and just 8.97mm thick, and weighs 132g (only the iPhone 6 Plus is heavier).

In many ways the iPhone 5c is the same phone as the iPhone 5 was when it launched in 2012. Aside from the new case, on the inside the iPhone 5c has the same rear-facing camera and processor. The FaceTime camera on the front of the iPhone 5c is better than the one found in the iPhone 5, however, offering better visibility in low-light. The iPhone 5c will take panoramas, but burst mode shooting is not available, nor is slo-mo video (both are available on all other iPhone handsets).

When it comes to battery life, Apple says that the iPhone 5c offers exactly the same battery longevity as the iPhone 5s: up to 10 hours of talk time on 3G; up to eight hours of internet use on 3G, up to 10 hours on LTE, and up to 10 hours on Wi-Fi; up to 10 hours of video playback; and up to 40 hours of audio playback.

Speed

Although the iPhone 5c features the same A6 processor as the iPhone 5, in some of our tests it scored slightly worse than its predecessor. For example, the iPhone 5 was about 10 percent faster than the 5c in Geekbench tests. As for the iPhone 5s, that model's Geekbench score was more than twice that of the iPhone 5c. However, even these speeds will be more than enough for the average needs of a user.

The GPU performance of the iPhone 5c is also inferior to that of the iPhone 5s, with the latter achieving 25fps, more than 3.5 times more than the iPhone 5c. If you aren't playing games or editing video on your iPhone, though, it is unlikely that this will matter to you.

Price

The 8GB iPhone 5c costs £319. There is only an 8GB model available from Apple, so if you want 16GB or more then you will need to move up to the entry-level 16GB iPhone 5s. But as the 16GB iPhone 5s costs £140 more than the 5c at £459, if you are considering the iPhone 5s, then you might as well fork out another £40 and get the 34GB version of the iPhone 5s for £499.

iPad Air

APPLE'S FULL-SIZED iPAD

The iPad is Apple's tablet computer. It's partway between an iPhone and a laptop, offering you the extra screen space, but using exactly the same operating system as the iPhone, so if you already own an iPhone it will feel familiar. There are millions of apps available for the iPad that allow you to do anything from producing spreadsheets and presentations, to playing games, creating photographic masterpieces or editing home videos.

Apple sells two models of iPad Air: the iPad Air 2, launched in October 2014, and the iPad Air, which arrived the previous October. When the first iPad Air launched in 2013 it was already incredibly thin, just 7.5mm, but the iPad Air 2 is even thinner, a mere 6.6mm.

The Air 2 also has an upgraded rear-facing camera (8Mp to the iPad Air 1's 5Mp). There are certain shooting conditions in which the iPad

Air 2 demonstrates its superiority – particularly close-up detail under studio lighting and in low-light conditions. The iPad Air 2 also gains some camera software features including slo-mo and time-lapse video modes, as well as burst mode and a timer. And panoramas: the iPad Air 1 already had these, but they can now go all the way up to 43Mp. We're always surprised that anyone would use the iPad as a camera – it is a rather inconvenient size, yet people often use one to take photos and videos, perhaps because of the size of the viewfinder.

Both iPad Air models offer Retina displays with a resolution of 2048x1536 and a pixel density of 264ppi. However, the iPad Air 2 adds an anti-reflective coating and, thanks to new manufacturing technologies, Apple has been able to remove the 'air gaps' between different elements of the screen, which effectively gives users more display clarity and makes it easier to see the screen from different angles – valuable if, for example, you're sitting next to someone and sharing the iPad screen to watch a movie.

The Air 2 also comes with a Touch ID fingerprint scanner built into the home button. Touch ID is convenient, enabling you to unlock your iPad, or an individual app, with a single touch of a finger rather than a passcode or password. As apps and websites integrate Apple Pay, you will be able to use Touch ID on your iPad to pay for things. However, you won't be able to use the iPad in the high street as it lacks the requisite NFC chip.

Other differences between the iPad Air 1 and 2 include a gold finish as an option for the newer model. The iPad Air 2 is available in silver, gold and space grey, while the iPad Air 1 is available only in silver or space grey. The grey model has a black rim around the screen, but all other iPads are white on the front.

Speed

The iPad Air 2 contains a new processor chip – the A8X, which is a souped-up version of the A8 that made its first appearance in the iPhone 6 and iPhone 6 Plus.

With its A8X processor chip, the iPad Air 2 is significantly quicker at general processing and handling graphical tasks than the iPad Air 1 (which has an A7 chip) – about 40 percent faster, on paper. But at this point that difference is more theoretical than practical. In our Geekbench tests the iPad Air 1 scored 1,468 (single) and 2,658 (multi), while the iPad Air 2 scored 1,818 (single) and 4,520 (multi).

In terms of graphics, Apple claims that iPad Air 2 users will see 2.5 times the graphics performance of the first iPad Air. That's great news for gamers, and video and photo-editing apps will also benefit from the enhanced graphics performance.

However, the iPad Air 1 can handle all current apps, and you're unlikely to see major speed gains with current software. Over time this may change but if all you do with your iPad is browse the web and read and write emails, then you are unlikely to notice any slowdown.

Price

The iPad Air 2 starts at £399 for the 16GB version. Next up is the 64GB model for just £80 more at £479, and the 128GB model costs £559.

The 16GB iPad Air 1 is just £80 cheaper than the entry-level iPad Air 2, at £319. Or you can pay another £40 and get the 32GB version for £359, which is still less than the price of a 16GB iPad Air 2. If Touch ID isn't important to you, you may prefer to pay less and get twice as much storage space.

When choosing which iPad to buy, there is also the decision of whether to get one that is capable of connecting to the mobile networks, rather than just Wi-Fi. The models that can use 3G and 4G in addition to Wi-Fi cost £100 more than the non-cellular models.

iPad mini

APPLE'S SMALLER IPAD

If the iPad Air is partway between an iPhone and a laptop, the iPad mini is partway between the iPhone 6 Plus and the iPad Air. It's a popular choice for those who want to read books. It also used to be popular because it was a lot lighter than Apple's full-sized iPad, but the difference in weight has since been scaled back: the iPad Air 2 weighs 437g while the iPad mini 3 weighs 331g. It's screen size that is the key difference between the iPad Air and iPad mini now, with the Air featuring a 9.7in Retina display and the mini a 7.9in display.

Apple now sells two models of iPad mini. The iPad mini 3 was launched in October 2014, and is essentially the same as the iPad mini 2, which launched in October 2013. Apple recently stopped selling the original iPad mini, which was launched in October 2012.

The main difference between the iPad mini 2 and 3 is the inclusion of Touch ID on the later model, and the option of a gold finish.

When Apple launched the newer iPad mini we were disappointed that it didn't also gain any of the features offered by the 2014 iPad Air. For that reason we generally advise saving £80 and purchasing the iPad mini 2 unless you really want Touch ID. The newer iPad costs £80 more than the previous year's model. For some, Touch ID may be worth the extra £80, but other than that there really is no other difference.

There is a much bigger difference between the iPad mini 1 and newer iPad mini models. You can still buy the 16GB original iPad mini for £199 – £70 less than what it sold for at launch (£269). This iPad lacks a Retina display, and is thicker (7.2mm compared with 7.5mm) and heavier (308g compared with 331g) than the other iPad mini models. Even if you find one for sale, we wouldn't recommend buying one.

If all you need is a low-cost device for reading books or watching video when commuting, the iPad mini 2 will be ideal.

All the iPad minis have the same rear and forward-facing cameras. The camera on the rear offers 5Mp photos while the front-facing camera – used predominantly for FaceTime video calling – offers 1.2Mp. The only real difference between the iPad minis is that the newer models offer panorama shooting while the original iPad mini didn't. The original iPad mini lacked the 3x video zoom.

All iPad minis have a battery life that gives up to 10 hours of web surfing, video or music on Wi-Fi, and nine hours over a mobile data network.

Speed

Another key difference between the original iPad mini and the newer iPad mini models is the fact that the earlier model features the A5 chip rather than the A7 and M7 motion co-processor combo. The A5 processor first appeared in the iPhone 4s, which should give you an idea of just how old that processor is now. It's a 32-bit system-on-a-chip that also powers the fifth-generation iPod touch and the Apple TV.

The iPad mini 2 and 3 both feature the A7 processor, which can also be found in the iPad Air 1. This is a 64-bit system-on-a-chip that first appeared in the iPhone 5s in 2013 and was the first 64-bit processor to ship in a consumer smartphone.

The A7 is around four times as fast for general processing and about eight times as fast for graphical processing. As time goes by the most demanding tasks – extremely graphically ambitious 3D games, video and photo editing, and all the more processor-intensive apps that will be released in the next few years – will begin to tax the powers of the iPad mini 1, which only offered the A5 chip.

Price

There's an £80 gap between the iPad mini 2, and the iPad mini 3. Paying the £80 for the Touch ID isn't all that attractive, you might prefer to spend £100 more and get a Wi-Fi and cellular version. Each model is available for Wi-Fi only, or you can add cellular capabilities for another £100, which will enable you to connect to a mobile phone network when you are out and about.

iPods

THE MP3 PLAYER THAT STARTED IT ALL

Apple sells three types of iPod: the iPod shuffle, the iPod nano and the iPod touch.

The iPod touch is far more than just a simple music player. It comes equipped with essentially all the features of a fully fledged iPhone bar the call capabilities. The iPod nano is also a capable device, and small enough to carry anywhere, while the iPod shuffle is simple, inexpensive and tough.

Apple quietly retired the original iPod classic in October 2014, after seven years of faithful service.

With the iPod classic now a distant memory, those wanting a large amount of storage on their iPod will find the options rather limiting. Currently, the iPod shuffle offers a humble 2GB of storage, while the iPod nano boasts a rather more spacious 16GB. It's worth bearing in mind that this means the shuffle can hold around 450 songs encoded at 128kb/s, with the nano's 16GB topping out at around the 4,000 mark. The only model to go higher than 16GB is the iPod touch, which is available in 16GB, 32GB and 64GB variants. While it's nowhere near the mammoth 160GB capacity of the iPod classic, it should still offer enough room for the vast majority of users.

The shuffle is probably the most true to that original iPod, as it focuses solely on playing audio. The lack of a screen has meant that in the past you had to remember what was on the device, and switching between tracks was something of a lottery. Now, thanks to the voiceover feature, the iPod shuffle will read out the name of the track, podcast, audiobook or playlist to you, and allow you to choose the one you want to listen to.

The most obvious feature that differentiates the iPod nano and the iPod shuffle is the nano's 2.5in multitouch display. This enables the iPod nano to have a range of included apps that broaden its appeal. Music is, of course, still the primary function, with the cool ability to create genius mixes on the fly by tapping a button while a song is playing; the device will then automatically generate a playlist from your library based on that track.

A screen also means video, with the iPod nano playing any media synched to it from your iTunes account.

The iPod touch is in a different category to its smaller siblings. As the only iPod to run a full version of iOS, the iPod touch has access to the full App Store, with all the games, productivity tools, social media and camera apps that you'd expect to find on an iPhone, as well as web access. The built-in camera, while not quite up to the iPhone quality, still offers great shots.

iPods may not share the same always-on nature of smartphones, but battery life remains an important factor for any portable electronic device. You might think that the iPod shuffle would win this category due to its lack of a power-sapping screen, but its diminutive size means a small battery and it lasts for only 15 hours. It loses out to the nano, which goes for around 30 hours, while the iPod touch – which houses the largest battery in the range – holds out for a massive 40 hours of listening time. If you watch video, though, things immediately change, with the nano affording 3.5 hours and the touch falling to eight hours.

The iPod shuffle is best for sports enthusiasts because it's cheap, hardy and can clip onto pretty well anything. Those with smaller music libraries will also appreciate the value of an inexpensive device that is still powerful thanks to the voiceover feature, as will everyone who don't want to spend a lot on a music player.

The iPod nano is ideal for those who want a svelte device with more capacity than a shuffle.

The iPod touch has a higher price tag and in many ways strays rather too close to the smartphone world to make it a compelling device for those who already own an iPhone. If you do want an internet-capable iOS device, then you can pick up an iPod touch for less than the price of an iPad. The iPod touch is also a great option for teenagers who want to communicate with friends, watch the latest YouTube videos, listen to their music, and not have ongoing bills for their parents to pay.

Price

If you really don't want to spend a great deal on a device, and don't mind a limited set of functions, then the iPod shuffle is a very tempting option at £40. Moving up to an iPod nano will give you a few more advanced features and eight times the storage, but the price jumps up to £129. For iPod royalty, you'll find the three models of iPod touch priced at £159 (16GB), £199 (32GB) and £249 (64GB).

Which iPad and iPhone?

HOW TO CHOOSE THE iOS DEVICE THAT WILL SUIT YOU

With four iPhones and four iPads to choose from, each with very different specs, it can be tricky to decide which iOS device to buy.

Those who want a 'phablet' experience – midway between a phone and a small tablet – might be interested in the iPhone 6 Plus. Fans of gaming and movies will also like the 6 Plus's big screen. Some business users may find the big screen good for productivity apps. The 6 Plus is likely to be the phone of choice for early adopters and others who like to have the latest thing, and for those on a big budget.

If the iPhone 6 Plus is a bit too big (and more than a few buyers have found this), then you might go for the smaller iPhone 6. It still has appeal for those who want a bigger screen (for games and films in particular, but also work apps and a generally more immersive experience) but a more portable device. The iPhone 6 is easier to slip into a pocket (and to use one-handed) than the iPhone 6 Plus. It's also a bit more affordable.

But what if you don't want the iPhone 6 with its 4.7in screen or the iPhone 6 Plus with its 5.5in screen? The iPhone 5s misses out on a lot of the features in the newer iPhones, including the latest processor, various camera features including 43Mp panoramas, the ability to use Touch ID in-store (when Apple launches Apple Pay in the UK), better battery life and more. But if the smaller screen size is crucial, then it's still a good phone. And it does feature Touch ID (albeit without the NFC chip that will enable Apple Pay on your high street). It's a good deal, especially the 32GB version.

There are various features that the iPhone 5s has that the iPhone 5c doesn't, like the Touch ID fingerprint scanner and a better camera with better photography features. It's the cheapest iPhone, but it's not necessarily the best deal, crippled as it is by its 8GB drive.

The step up from iPad Air 1 to iPad Air 2 brings a faster processor, a better rear-facing camera (8Mp, up from 5Mp) and Touch ID, as well as a device that is 6 percent lighter and 19 percent thinner, with a less reflective screen and the prospect of iOS update support for about a year more than the iPad Air 1. Is all that worth an extra £80? Probably.

The iPad Air 1 is still a great iPad, though, fast enough for all current apps. Those who have light use in mind (email, browsing the web, simple games) should be fine with it, and would save the extra £80. However, such customers might want to consider a cheaper option still: the iPad mini.

The first and most obvious thing to say is this: £80 extra for the iPad mini 3 (compared with the equivalent mini 2) is a tough sell. All you get for that is Touch ID, and while Touch ID is cool and convenient, it's hardly worth £80.

The two iPads are identical in every other way except for colour options – for example, the iPad mini 2 and 3 offer the same A7 chip. This means that there's no real reason to upgrade.

There may also be a newer iPad on the way. Rumours suggest and iPad Pro is in the pipeline.

Apple TV

APPLE'S SET-TOP BOX

The Apple TV is a connected set-top box, measuring 23mm by 98mm by 98mm and weighing 27g, that offers access to iTunes TV shows and movies, as well as content from Netflix, YouTube and Vimeo. You can also stream content to your TV from your Mac, iPhone and iPad. It costs £59.

The Apple TV isn't a TV in the normal sense of the word, because it doesn't have free-to-air channels or a digital video recorder to store shows to watch at a more convenient time. However, it does offer what could be described as channels, and this content keeps on growing, leaving us hopeful for a future where the Apple TV will include links to on-demand services just like our iPhones and iPads do – think the iPlayer and 4oD apps and you're not too far away.

Apple has made multiple updates to the Apple TV software over the years, adding a number of new app-style TV channels, delivering new content to Apple TV users. Most recently the Now TV app addition brought Sky entertainment, movies and sports content to the Apple TV, for a subscription.

Probably the most popular app on the Apple TV is Netflix. In many ways it's the only reason we recommend the Apple TV right now, because without it there would be very little content available to UK users. When a Netflix subscription costs just £5.99 a month, it is very difficult to recommend spending almost that much on hiring a single movie to watch via Apple's own iTunes Store, although you will find some iTunes content that won't appear on Netflix for months or years – or maybe not at all.

In the US the Apple TV includes Hulu Plus, HBO Go, Showtime Anytime, Fox Now, Watch ABC, Disney Channel, Disney XD, Disney Junior, PBS, A&E, History, Lifetime, WatchESPN and much more.

It is possible to run apps for some services on an iPhone, iPod Touch or iPad and then stream them to the Apple TV using AirPlay – but the Apple TV really needs to provide direct access to those services without requiring any expensive additional hardware.

Despite the limited content here in the UK there is still a lot to like about the Apple TV. It's well built and easy to use. Some of the better features work only with other Apple products, but if you own those products then the Apple TV is a great addition.

We like the Apple TV's user interface too. It's simple and intuitive, as you'd expect from Apple, and will be familiar to all iPad and iPhone users as it utilises the bright and bold iOS looks. You navigate the setup menus and input Wi-Fi network and password via the included Apple TV remote or using your iPhone and the Remote app. You can also pair it with a Bluetooth keyboard. Using the keyboard of the iPhone app simplifies the task of entering network passwords or using the search function when browsing content.

The Apple TV includes an HDMI interface with 1080p output for connecting to your high-def TV, as well as built-in Wi-Fi for your home network. There's no hard drive inside that tiny little box, so you can't download films or TV programmes for permanent storage, but you can download purchases onto a Mac or PC using iTunes and then stream them to the Apple TV using Apple's AirPlay wireless technology. AirPlay will also allow you to stream video from any iOS mobile device.

New Apple TV on its way

The last time Apple updated the Apple TV was back in January 2013, and even then it was just a minor update. Speculation about a fourth-generation Apple TV has been mounting, and it's certainly possible that Apple is gearing up to launch a new Apple TV this year.

In the two years since the last Apple TV update, many competing products from rival companies have launched, so Apple really needs to get a move on if it wants to dominate the set-top box market.

This new Apple TV may be smaller than the existing one, and it may feature a new remote, be Siri-activated, or even, rumour has it, be controlled using Kinect-like gestures.

Other rumours suggest that the new TV could include access to the iOS App Store so that users can purchase apps that can be viewed on their TV set – as well as games that can be played on the Apple TV. Our biggest wish, though, is that Apple brings the UK on-demand channels to the Apple TV – all its competitors offer them and their absence represents a serious failing on Apple's part.

Hopefully, any new features coming to the Apple TV will work on the current model as well as any new one that Apple launches.

Apple Watch

APPLE REINVENTS THE SMARTWATCH

Apple unveiled the Apple Watch back in September 2014, band finally went on sale on 24 April 2015.

The best news here is that Apple's not just launching a smartwatch but a whole raft of smartwatches. By combining the three different Apple Watch categories, the two different face sizes, and the accompaniment of straps, there is the potential for 38 different Apple Watches, so there will be a style to suit anybody. And crucially, since Apple is offering two watch face sizes, the Apple Watch will be as comfortable on a female wrist as it is a man's.

Where other companies have failed to come up with a smartwatch design that suits anyone, Apple has solved the issue by coming up with multiple designs to suit everybody.

Rather than try and make one watch to suit everyone, Apple has designed three basic Apple Watch varieties targeted at different groups of people. Starting at £299, the Watch Sport, for example, is ruggedised and has a strengthened Ion-X glass face so it should be able to take some bashing. It's also the lightest of the three Apple Watch editions because its case is made from anodised aluminium. The Watch Edition is clearly designed for the fashion-conscious, with a beautiful 18-carat gold case available in yellow or rose gold; it even comes in a fancy leather box that doubles as a charging cradle. Prices start at a staggering £8,000.

The watch face itself comes in two sizes: one is 42mm high, the other 38mm. The sapphire (for the Apple Watch and Watch Edition) or Ion-X glass face (for the Apple Watch Sport) sits in a case made from stainless steel, aluminium or gold, depending on which of the three models

you opt for (Apple Watch, Apple Watch Sport or Apple Watch Edition, respectively). The stainless steel finish is available in standard or black, the aluminium finish in silver or grey, and the 18-carat in yellow gold or rose gold.

There is also a collection of straps to choose from, including link bracelet, sport band, leather loop, classic buckle, modern buckle and Milanese loop. The leather loop and sport band options are offered in multiple colour choices. The sport band comes in black, white, pink, blue and lime green, for example.

And if that's not enough customisation options for you, there are a number of watch faces to choose from – some are even animated. And you can change the colours and design elements of these.

The problem that many of the current smartwatches have is that the user interface is packed into a tiny display and you need to manipulate those titchy visual elements using your fingers – which are inevitably bigger than the elements you are trying to touch.

Apple's solution is to make use of the stud on the side of the watch that was once used to wind up clockwork watches. This stud – its proper name is the crown – has been turned into what Apple calls a Digital Crown. This Digital Crown solves the problem of swiping through icons on a minuscule display. You can use the crown to zoom in on interface elements and scroll through content on the watch face, without your fingers obscuring the view. The Digital Crown can be used to navigate through lists as well as zoom in on data, maps and photos.

This doesn't mean that the watch face isn't touch-sensitive. You can tap and swipe the

Apple Watch face. In fact, the Apple Watch can determine just how hard you touched the screen. It can distinguish between a normal tap, used to select things, and a harder press, used to access contextual menus. Apple calls this technology Force Touch.

You aren't the only one doing the tapping when it comes to the Apple Watch. The watch incorporates what Apple calls a taptic engine, which lets it 'tap' your wrist to alert you to notifications. It's similar to the vibrate function on an iPhone, except that only you know that you are being nudged.

You can also interact with the Apple Watch via Siri, dictating messages or requesting turn-by-turn directions.

There will be various apps available for the Apple Watch. These are slimmed-down snippets of apps, referred to by Apple as 'Glances'. You will be able to glance at Messages, Mail, Weather, Calendar, Maps, Passbook, Music, Photos and more. Apple will also offer its own Activity app for the Apple Watch – it uses three circles to demonstrate how close you are to meeting your targets for calories burned – and a number of other health and fitness apps will also be available.

You will be able to use the Apple Watch to pay for things, just as soon as Apple launches its Apple Pay technology in the UK. All you do is double-click the button and hold up your watch to a payment reader. This is made possible because the Apple Watch includes an NFC chip, as do the iPhones 6 and 6 Plus. For added security, if you take the Apple Watch off, it'll lock and require a code before you can purchase anything.

Apple peripherals

AirPort Time Capsule
2TB £249, 3TB £349

The Time Capsule works with Apple's Time Machine app to make backing up your Mac really simple. It comes with 2TB or 3TB of storage and continuously makes a copy of everything on your Mac, backing up the files you've changed automatically, wirelessly, and in the background.
Full review: tinyurl.com/Lh6pjqu

AirPort Express
£79

Apple's AirPort Express is a Wi-Fi base station that also features the ability to stream audio from a Mac, iPad or iPhone to a stereo using AirPlay – kind of like an Apple TV for your stereo. It also works as a wireless access point to extend the range of a network but is only 802.11n-capable.
Full review: tinyurl.com/q4xqszq

AirPort Extreme
£169

The AirPort Extreme is a Wi-Fi base station that combines the functionality of a router, network switch and wireless access point. You can also attach a hard drive to it for wireless network attached storage (NAS). It supports 802.11ac. Note that AirPort devices are routers, not modems.
Full review: tinyurl.com/mfdLLsc

Thunderbolt Display
£899

Introduced in 2011, Apple's Thunderbolt Display is almost four years old. It offers 2560x1440 resolution, 375cd/m^2 brightness, and a 1,000:1 contrast ratio. But it's more than a monitor – it offers three USB 2.0 ports, a FireWire 800 port, gigabit ethernet and, of course, a Thunderbolt port.
Full review: tinyurl.com/nkhkzm8

Magic Trackpad
£59

Apple introduced the Magic Trackpad back in 2010. It's similar to the trackpad on a MacBook, and it's designed to complement Apple's Wireless Keyboard as an alternative to a mouse. The Magic Trackpad's functions are practically identical to its laptop counterparts.
Full review: tinyurl.com/qd474vb

Magic Mouse
£59

Sounding a bit like a kid's superhero, the Magic Mouse is a multi-touch Bluetooth mouse that lets you click anywhere, scroll in any direction and perform gestures like you do on the Trackpad. It's a bit more precise to use than the Magic Trackpad and is included with every new iMac.
Full review: tinyurl.com/nc9o95e

Apple Wireless Keyboard
£59

Like the Magic Mouse, the Bluetooth-enabled Apple Wireless Keyboard is available with every new iMac. Its use doesn't stop with the Mac, though. Apple's Wireless Keyboard can be paired with an iPad, iPhone or an Apple TV to make entering data easier on those devices.
Full review: tinyurl.com/kuoa86k

Apple Keyboard
£40

There is also a wired keyboard available for those who prefer not to be constantly looking for batteries. It features a numeric keyboard, which is handy if you are often working with data. We love the Apple keyboards because they are quiet to use and the low profile helps avoid RSI.
Full review: tinyurl.com/px5rj8c

Apple EarPods
£25

Designed according to the geometry of the ear, Apple's EarPods are more comfortable for many people than other earbud-style headphones. A built-in remote lets you adjust the volume, control the playback of music and video, and answer or end calls with a pinch of the cord.
Full review: tinyurl.com/mmvo52c

Apple In-Ear Headphones
£65

Apple says its In-Ear Headphones with a mic and remote are "engineered for superior acoustic accuracy, balance and clarity". Each earpiece contains two dedicated drivers – a woofer to handle bass and mid-range, and a tweeter for high-frequency audio. If you prefer in-ear headphones – which tend to let less sound leak, so you don't have to blast the sound out as high – these could be a good option.

Apple software

OS X 10.10 Yosemite
Free

The latest version of Apple's operating system for the Mac launched in October 2014 with a completely new look. Benefits of the new OS include better continuity between your iPad, iPhone and Mac, with features such as AirDrop and Handoff making it easier to move between devices.
Full review: tinyurl.com/ohv23hs

iOS 8
Free

Apple introduced iOS 8 in September 2014. The new operating system for iPad and iPhone bought a way to share content with your family and iCloud Drive, making it easier to store and access data in the cloud. Other additions include extensions, improved keyboard and the Health app.
Full review: tinyurl.com/kmavwnw

Final Cut Pro X
£229.99

Final Cut Pro X is Apple's professional video editing suite. You can work with multiple streams of 4K ProRes at full resolution, play back complex graphics and effects in real time without rendering, output 4K video to ultra-high-definition displays, and create 3D titles.
Full review: tinyurl.com/phs7zc7

Logic Pro X
£149.99

Apple's Logic Pro X is Apple's professional music creation software. It includes a huge collection of instruments, effects and loops, as well as drummer tracks. It's aimed at professionals but is also a great step up from GarageBand for those who want to get serious about music creation.
Full review: tinyurl.com/nfgavnz

GarageBand
Mac £3.99, iOS £3.99

This music creation software is available for both Mac and iOS. It offers a complete sound library with software instruments and virtual session drummers. You can learn to play an instrument as well as play, record, create and share your hits. Free with new Macs and iOS devices.
Full review: tinyurl.com/nk5srLq

iMovie
Mac £10.99, iOS £3.99

This home movie making software is available for iPhone, iPad and Mac. You can create an HD movie, or quickly put together a Hollywood-style trailer. It's an easy way of turning the video you take on your iPhone into something you'd want to share. Free with new Macs and iOS devices.
Full review: tinyurl.com/pc7xp3e

iTunes 12
Free

Apple's iTunes was originally music jukebox software that came into its own with the launch of the iPod. Since then iTunes has grown and is now the means by which users can manage all their media: music, movies, apps and more. Use iTunes on a Mac to access the iTunes Music Store.
Full review: tinyurl.com/kj32hvu

Pages
Mac £14.99, iOS £7.99

Pages is Apple's answer to Microsoft Word (and is compatible with Word). It's a word processor for Mac and iOS that works seamlessly between the different devices. In many ways it's more of a page layout application for creative people, with more design-led features than Word.
Full review: tinyurl.com/qfdzfjc

Keynote
Mac £14.99, iOS £7.99

Keynote is a presentation app for Mac and iOS that is basically Apple's answer to PowerPoint. It features really easy-to-use tools, some great effects, animations and transitions for creating attractive presentations. You can save Keynote documents as PowerPoint files if you wish.
Full review: tinyurl.com/nz3q3uf

Numbers
Mac £14.99, iOS £7.99

Apple's answer to Excel is Numbers, a spreadsheet app that can be used on both Mac and iOS devices. Because it's Apple, Numbers lets you turn your data into a thing of beauty, dropping your figures onto one of Apple's templates, but it also does the maths, supporting over 250 functions.
Full review: tinyurl.com/o5qnk4g

Tim Cook's Apple is the Apple we need

Cook's more relaxed grip and good–natured charm go a long way towards softening Apple's image

Since Tim Cook took the reins in Cupertino, almost four years ago, a gradual but inexorable change has taken place. And, speaking as a longtime follower of the company, there was to me no greater indication of that than the recent kerfuffle over artist royalty payments, and the eventual policy reversal from the company. Let us count the ways in which this whole to-do reflects the changing face of the company.

First off, policy reversals are nothing new to Apple, even under Jobs. The company dropped the price of the original iPhone, for example, and launched a video iPod after Jobs derided the idea of watching video on one. But in so many of those scenarios, the moves were conveyed less as reversal and more as 'we meant to do this all along' or 'I only said nobody would do that because nobody has done it right'. In this case, it was framed as a direct reaction to a complaint – Taylor Swift's open letter – and carried at least a sentiment of the mea culpa, if not an out-and-out apology.

Secondly, this policy change was announced via Twitter. Apple's been slow to embrace social networking. Though many of the company's individual arms have a presence on the network – iTunes, the App Store, even the nascent Apple Music – there's still no official Apple account. (Both @apple and @appleinc exist, but are essentially empty.) The same seems to go for Facebook, where there's only an unofficial Apple page.

Traditionally, a move like this would have been announced via a comment from a PR rep to a news outlet – or perhaps, if it were truly a major incident, via a press release on Apple's PR page. (Or, in the occasional truly bizarre incident, holding a press conference and inviting a handful of press to tour the company's antenna testing facilities.)

Thirdly, that it came directly from senior vice president of internet and software services Eddy Cue himself is

Cook knows when to allow his team to do its job, and doesn't try to replicate the way Jobs ran the company

significant. During Steve Jobs's tenure, the vast majority of communication from Apple came either from the mouth of the CEO himself, or from Apple's public relations team. Cook's Apple, on the other hand, has put the rest of the executive team into far more visible positions, whether it be chief design officer Jony Ive's veritable cornucopia of press profiles, senior vice president of software engineering Craig Federighi's marathon presentation appearances, or senior vice president of worldwide marketing Phil Schiller's recent appearance on Daring Fireball proprietor John Gruber's podcast.

Cook's speciality is the running of the business, and at that he excels. But he also knows when to let his team do its job, and doesn't try to replicate the way Jobs ran the company.

As I wrote four years ago upon his ascension to the top position: "Tim Cook may not be the next Steve Jobs, but his job isn't 'New Steve Jobs', it's 'chief

executive officer'. He's there to keep the company running smoothly, so that the thousands of Apple employees can concentrate on making great products. He's there to do what he's good at and run the business, just like Jonathan Ive is there to do what he's good at and design great hardware."

That doesn't mean Cook doesn't command attention himself, just that he knows when to step back from the limelight. Instead, he's taken a page from Jobs' playbook, speaking up about the matters that are important to him personally: things such as equality, diversity and health.

The more I consider it, the more I've begun to think that even if Jobs were still around, Cook might still be the better choice for CEO in this day and age. Can you imagine Jobs being as receptive as Cook was to calls for improved diversity at Apple? Or embracing social media? Or posing for selfies? Yeah, me neither. That Jobs was a genius at what he did is difficult to deny, and there's no doubt that he could be charismatic when he felt like it, but in a time when concerns often revolve around issues such as transparency and responsiveness, it's hard not to think that his secretive and often waspish character might begin to wear thin. Meanwhile, Cook's more relaxed grip and good-natured charm go a long way towards softening the company's image – even as it continues to do business with ruthless efficiency.

In that same piece of four years ago, I was bullish about the future of an Apple under Cook: "What I'm excited about is what comes next. Apple under Tim Cook will undeniably look a lot like Apple under Steve Jobs, at least for the foreseeable future. But at some point, it will change."

Make no mistake, that process of change is far from over. The Apple of today is still recognisable as the house that Jobs built, but it's now become just as obvious that it's a house that Cook has put a lot of energy into renovating.

AOC

Q2577PWQ

Cutting-edge features, stylish good looks

The new Quad HD panel ensures that users can enjoy a full view of a website at a single glance without image distortion. IPS technology is one of the highest performing panel technologies currently available for displays. This way, AOC makes sure users will greatly benefit from high accuracy in colour, contrast and wide viewing angles. In order to give users a variety of options for connecting different input sources, the AOC Q2577PWQ comes with DisplayPort, HDMI, DVI and VGA. Also comes with a feature that ensures a zero-flickering viewing experience.

New 32-inch size available from July 2015